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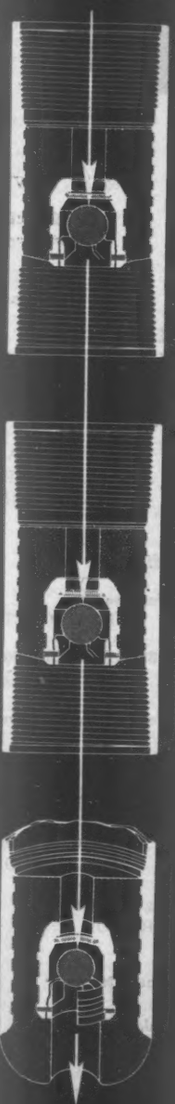
THIS FIELD REPORT TELLS THE STORY

IF *Performance* IS PROOF...

HERE IS CONCLUSIVE EVIDENCE AS TO THE CORRECTNESS OF DESIGN and EFFICIENCY OF BAKER FLOATING EQUIPMENT

Company—Superior Oil Company. **Field**—Rio Bravo. **Well**—Moodie No. 1. **Depth of Well**—11,550'. **Size of Hole**—17½" from 0' to 1800'; 12¼" from 1800' to 8789'; 11" from 8789' to 11,528'. **Casing Program**—13⅜" from 0' to 1800'; 7⅝" Extreme Line from 0' to 11,528'. **Guiding, Floating, and Cementing Equipment Used**—One 13⅜" Baker Cement Guide Shoe at 1800'; One 7⅝" Baker Cement Float Collar at 11,444'; One 7⅝" Baker Cement Float Collar at 11,485'; One 7⅝" Baker Cement Float Shoe at 11,528'. **Cementing Data**—Bottom Hole Temperature, 250°; Initial Pressure, 500#; Final Pressure, 2200#; Number of Sacks, 2500; Number of Mixing Trucks, 2—(1) 350# Steam Ends, (1) 500# Steam Ends; Number and Size of Rig Pumps, 2—15½"x9¼"x22", 500# Steam Pressure, 5 Boilers; Mixing Time, 40 minutes; Rate of Flow through Two Float Collars and One Float Shoe during Mix, 585 Gallons per Minute; Displacement Time through Two Float Collars and One Float Shoe, 14 Minutes; Rate of Flow through Collars and Shoe during Displacement, 1380 Gallons per Minute.

1380 GALLONS OF CEMENT PER MINUTE WERE DISPLACED THROUGH...



A 7⅝" BAKER CEMENT FLOAT COLLAR POSITIONED AT 11,444'...

A 7⅝" BAKER CEMENT FLOAT COLLAR AT 11,485' AND...

A 7⅝" BAKER CEMENT FLOAT SHOE AT 11,528'

The performance of Baker Floating Equipment on the above job, while outstanding to be sure, was not unusual. In fact, records will show that on the majority of the world's deepest wells, where adequate Safety and Efficiency factors are a "must" Baker Cement Guiding, Floating, Cementing Equipment have been specified (and, of course, on shallow wells these factors of Safety and Efficiency are simply multiplied).

"Safety" and "Efficiency" factors because of their very nature, are often looked upon as being something more or less intangible, but when these terms are used in connection with Baker Equipment, they have definite meaning. For example, in the case of a Baker Cement Float Shoe or a Baker Cement Float Collar, "Safety" means that the unit will safely guide the casing past any side-wall irregularities; that it is amply strong to land and cement the longest and heaviest string of casing; that the Ball-Type Back-Pressure Valve is firmly embedded in the plug of Baker Formula Concrete, which in turn is securely anchored in the steel casing shoe or collar. Safety also means that the internal construction of Baker Floating Units consists only of Baker-Formula Concrete and a small amount of Bakelite, which is quickly and easily drilled up and circulated out of the hole, leaving the hole in proper condition for further coring or drilling operations immediately below the shoe.

"Efficiency" means that the Valve Assembly in Baker Floating Units is correctly designed and that circulation areas through the valve chamber are adequate to handle any fluid capacities of pumps now available; that the Ball-Type Valve affords positive and instantaneous double sealing (against a tough, narrow rubber ring, backed by Bakelite and Concrete) at the slightest reversal of pressure. Here is truly *Valve Efficiency* and *Cementing Efficiency* at its best . . . plus *Complete Drillability*.

More details concerning the Safety and Efficiency of Baker Floating Equipment will be found on Pages 221 to 239 of the 1939 Composite Catalog—it will pay you to read them.

BAKER OIL TOOLS, INC.
HUNTINGTON PARK, CALIFORNIA · HOUSTON, TEXAS

BAKER CEMENT
GUIDING, FLOATING, CEMENTING
EQUIPMENT

Trends

Four States Join in Production Increase Netting Large Gain

ONE less production holiday in Texas last week caused an increase of 202,210 bbl. per day in daily crude output in that state, which, together with an increase in California of over 12,000 bbl. per day and substantial production increases in Oklahoma and Kansas, netted a total increase of 259,510 bbl. per day in average daily production for the week.

CRUDE PRODUCTION *3,685,549 bbl. daily average—up 259,510 bbl. One year ago 3,275,128 bbl.*

CRUDE STOCKS *231,564,000 bbl. as of October 7—down 1,459,000 bbl. One year ago 279,007,000 bbl.*

GASOLINE STOCKS *71,263,000 bbl. as of October 14—up 111,000 bbl. One year ago 69,172,000 bbl.*

GAS AND FUEL OIL STOCKS *140,417,000 bbl. as of October 14—up 719,000 bbl. One year ago 152,290,000 bbl.*

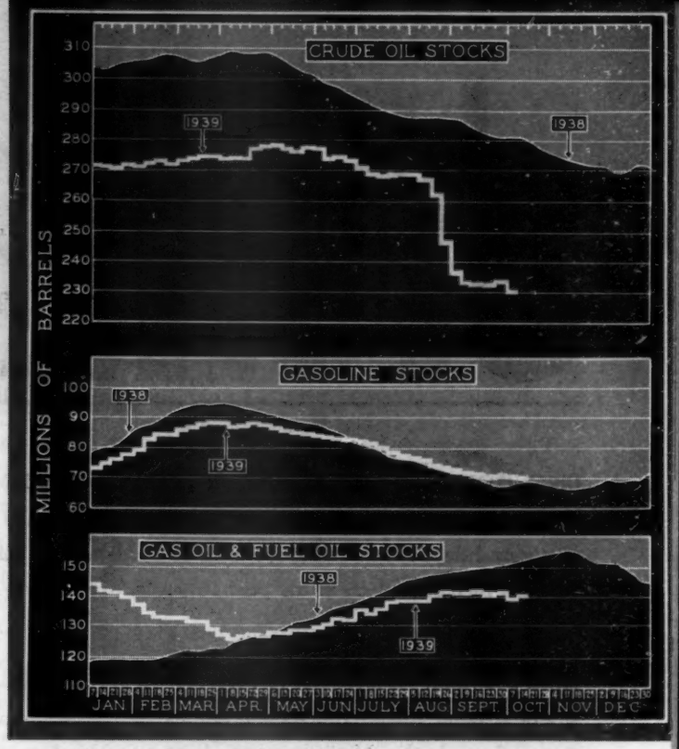
REFINERY RUNS *3,600,000 bbl. daily week ending October 14—up 95,000 bbl. One year ago 3,251,000 bbl.*

The succession of crude-oil price advances that began on September 1, and which spread to nine states, ended on October 10 for a time at least. The advances, except for a minor change in East Texas, missed the high-gravity fields west of the Mississippi River, notwithstanding an improved crude-oil statistical situation.

Pipe-line runs in Illinois declined the past 2 weeks, not because potential production is off, but in an effort to avoid overproduction. Under-price crude-oil buyers have, as a result, experienced difficulty in obtaining sufficient crude in the Salem field at below posted prices, and some of them have invaded the Keensburg townsite pool in Wabash County to obtain what they cannot buy in Salem.

Keeping supply down to demand in Michigan has been rewarded with average prices higher than they have been for any period within a year, and while conservation authorities have on the one hand been appealed to for more allowable, other petitioners have called for an even tighter rein on crude output.

CRUDE PROD BBLS. DAILY
REF. RUNS BBLS. DAILY
CRUDE OIL PRODUCTION 1938
CRUDE OIL PRODUCTION 1939
REFINERY CRUDE RUNS 1938
REFINERY CRUDE RUNS 1939
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.



No field discoveries of importance have been reported in recent weeks, but extensions of pools and new sand discoveries are of almost daily occurrence.

Uncertainties attaching to the future course of the European war are exercising an unfavorable influence on most divisions of the refined-oil market, in spite of which a generally cheerful outlook is preserved by the trade. Lubricating oils and wax continue to mount, with inventories dropping so low that some refiners no longer are quoting prices in the spot market. Others are said to have quoted high figures for the definite purpose of discouraging speculative buying and protecting their own stocks for contract business. Demand is so insistent, however, that the results have been simply to push the level of prices higher. Prices for Pennsylvania Grade bright stocks in the New York export market have more than doubled since early August. Inability to make export shipments on schedule, owing to war conditions, continues to increase congestion, particularly of gasoline and naturals, at Gulf ports, with attending disturbance of interior markets. Improving domestic conditions are providing excellent markets for heating oils and heavy industrial fuels and are a substantial factor in the heightened demand for lubricating oils and diesels.

DAILY AVERAGE PRODUCTION FOR WEEK

	Oct. 14, 1939	Bur. Mines Oct. est. of demand	Oct. state allowables	Oct. 7, 1939
Oklahoma City	108,625	.....	.....	91,750
Seminole fields	37,125	.....	.....	37,075
Remainder of state	279,600	.....	.....	273,600
Total Oklahoma	425,350	424,200	424,200	402,425
East Texas	492,848	.....	.....	394,590
West Texas	244,850	.....	.....	211,846
North Central Texas	120,450	.....	.....	97,110
Texas Panhandle	52,247	.....	.....	77,392
East Central Texas	81,600	.....	.....	86,088
Gulf Coast Texas	368,898	.....	.....	311,914
Southwest Texas	96,200	.....	.....	76,943
Total Texas	1,457,093	1,444,800	1,360,563	1,255,883
North Louisiana	66,980	.....	.....	65,974
Gulf Coast Louisiana	197,200	.....	.....	187,100
Total Louisiana	264,180	260,300	258,404	253,074
California	627,750	594,800	598,300	611,000
Kansas	164,125	170,600	170,600	144,075
Arkansas	64,870	56,100	65,300	66,015
Eastern fields	101,000	99,400	.....	99,250
Illinois	320,100	275,500	.....	332,715
Michigan	63,091	61,000	.....	67,982
New Mexico	114,000	114,200	114,200	111,450
Rocky Mountain area	83,990	89,400	.....	82,170
Total United States	3,685,549	3,590,300	.....	3,426,039

SPARKS . . . FROM THE NEWS

UBIQUITOUS TAX COLLECTOR: Taxes today equal the oil industry's annual payroll, and exceed its earnings. It's the multiplicity and duplication that make them so burdensome. Also, the diverted receipts, which in the past 15 years, exceed one billion dollars.

BLUE DANUBE: Congestion of shipping on the Danube, necessity of splitting tanker cargoes into barges, and cessation of shipments through the Mediterranean, have combined to reduce Rumanian deliveries to Germany. The Danube is frozen over an average of 130 days each winter.

ONE BETTER: The oil industry can go the food industry one better in its boast that its product is untouched by human hands. For not only is petroleum untouched, but it is also unseen by human eye from the time it leaves the earth until it goes into crankcase or gas tank. So comments a lively house organ.

EXCEPTION: This week several thousand barrels of oil were spread upon the water near the European coast line but the act was not voluntary. This is one case where pouring oil on troubled waters had no beneficial effect.

IN REVERSE: Proverb about "no news is good news" seems reversed in newspaper reports of T.N.E.C. Only sensational charges get printed; good news about the industry apparently being regarded as no news.

TOPSY-TURVY: Reversals of normal procedures are uncommonly prevalent these days. Oil-well drilling, usually on the downward skids at this season of the year, is on the up and up, as discovered in a Journal survey of the situation.

RESPITE: Recent activity in Tennessee and Mississippi may serve to take some of the strain off of Illinois. These states continue to merit headlines from week to week, though neither is as yet at boom-tide.

TEN TO ONE: A famous authority estimates that the production of 1 ton of gasoline from coal requires 10 times as many men as would the production from oil. This fact should throw a strong light on the possibility of Germany supplementing her war gasoline needs by synthetic production.

EXPORTS COMPARED: Value of petroleum products exported in September rose to $35,127,000 compared to $33,079,000 in August 1939 and against $30,837,000 in September 1938. Crude oil exported in September was valued at $9,192,000 against $7,383,000 in August 1939 and compared with $8,166,000 in September 1938.

RUMOR: Italian flag tankers are rumored to be refueling a flotilla of about six German submarines in the Caribbean Sea.

ASTRONOMICAL UNITS: Motorists in the world run their cars 250 billion miles annually. That's 10 million times around the earth at the equator.

CUSTOMER: The railroads' best customer, despite its pipe-line facilities, is the oil industry, which is responsible for almost 10 per cent of the total carload freight revenue.

BARCO READY: Poised for action and awaiting the starter's gun, is the Barco concession line, which will start pumping next week. Colombian dignitaries will be guests at the ceremony which will officially launch this new source of high-gravity crude.

CALIFORNIA'S WILMINGTON FIELD . . .

View of Long Beach Harbor section of Wilmington field, California, looking from Terminal Island to the mainland. Note the two Chinese junks in harbor

View of country in the Barco concession, Colombia

Barco Pipe Line to Open Next Week

NEW YORK, Oct. 16.—Another South American field, in the Barco concession in eastern Colombia, has reached the shipping stage, making a new supply of high-gravity crude available to world markets.

Pumping oil through 259 miles of 12-in. line to the shipping terminal at Covenas on the western shore of Colombia on the Caribbean started October 10. The Covenas terminal is to be opened during the week starting October 22. Colombian cabinet ministers are to be guests of South American Gulf Oil Co. and Colombian Petroleum Co. at an opening ceremony.

F. C. Sealey, president; James Terry Duce and John C. Case, vice presidents of Colombian Petroleum Co., and Waldo Sheldon, Venezuela representative of Socony-Vacuum Oil Co., Inc., left New York this week for Colombia. Mr. Sealey and Mr. Duce represent Texas Corp., and Mr. Case and Mr. Sheldon represent Socony-Vacuum.

The line rises from the concession in the extreme eastern part of Colombia to a maximum of 5,423 ft. at Rieber Pass, a crossing in the Perija Mountains, named after Capt. T. Rieber, chairman of Texas Corp., who played an important role in acquisition of the property from Gulf Oil Corp. and the Carib Syndicate.

There are three pumping stations, all east of Rieber Pass. The stations are diesel powered and are located at Petrolea, the field terminal, at Tarra, and Convencion. From the highest point to Covenas, gravity provides more than ample pressure to carry the crude. Capacity is rated at 25,000 bbl. per day which may be increased by additional pumping stations for the high lift on the eastern side, to double the figure.

Sixty-eight producing wells have been completed on the Barco concession and 13 nonproducers have been drilled. Of the producing wells, 60 were drilled in Petrolea, 7 in Rio de Oro, and 1 in Carbonera. Because of the provision in the concession providing that the company must erect a refinery when production has reached 4,000 tons daily (approximately 30,000 bbl.) and since a plant is under construction at Petrolea it is assumed production is substantially in excess of the minimum.

Five light diesel-driven rotary rigs, one steam-powered rotary rig, and two heavy diesel rigs, a total of eight, are operating in the Petrolea area. One rig is operating in the Rio de Oro section. One wildcat has been drilled, No. 1 Carbonera, completed for a small well at 2,722 ft. A second test is drilling in the same vicinity. One additional wildcat is rigged up.

The company has provided airports for communication between Rio de Oro and Petrolea. A surfaced highway has been completed between Puerto Leon and Empalme. Ten kilometers are in use at No. 1 Carbonera and 15 km. have been completed to Cerro Gonzales. Roads have also been built to each of the other locations at Petrolea and Rio de Oro. A light railway, 40 km. long, connects Petrolea with the concession. The Rio Zulia is crossed at Puerto Leon with a ferry and cableway.

During 1937-38 material brought into the concession totaled 17,250 metric tons. Practically all equipment came into the concession by way of Lake Maracaibo and up the Catatumbo River by barges. Material for the Rio de Oro camp is taken up the river and material for Petrolea goes up the Tarra and Sardinata to Puerto Reyes, or via railroad from Encontrados to Puerto Leon and thence by road to Petrolea. Well-equipped laboratories are maintained at Petrolea, Rio de Oro and Cucuta, where the geologists and geophysicists study well samples and surface formations.

Colombian Petroleum Co. employs 1,698 Colombians and 155 North Americans in its Barco operations. The refinery under construction at Petrolea has a capacity of 500 bbl. per day.

The Barco concession lies in the upper Catatumbo basin, which is limited on the west by the Perija Mountains, or 4,500 to 11,000 ft. in height, and on the east and south by spur ranges of these mountains. The entire area is virgin jungle. The international boundary between Colombia and Venezuela limits the concession on the northeast. The western, southern and southeastern margins include foothills of 1,000 to 4,000 ft. elevation. The eastern and northeastern portion comprises a large area of low hills and alluvial flats. Rainfall varies from 100 to 350 in. per year. Three series of rocks are involved: ancient crystalline basement rocks on which the sediments rest; Cretaceous marine sediments, and Tertiary nonmarine sediments.

The Colombian Petroleum Co. is capitalized at $10,000,000 divided into 100,000 shares of $100 U.S. currency par. The Texas Corp. and Socony-Vacuum equally own 99,762 shares, the remaining 238 shares are in the hands of private parties. South American Gulf Oil Co. is wholly owned on a 50-50 basis by Socony-Vacuum and Texas Corp.

Three fields exist on the Barco concession.

North Petrolea dome.—Productive area, 3,500 acres. Production comes from five zones in the Cogollo formation and also from the Uribante faulted anticline structure, both of Cretaceous age.

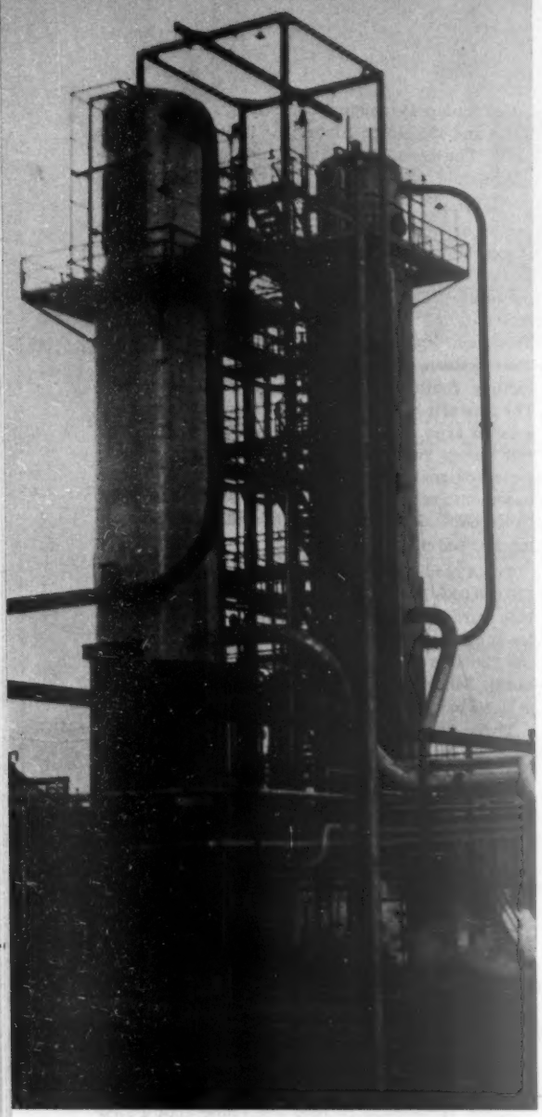
Rio de Oro.—Production of 38° A.P.I. gravity oil comes from sands in the Catatumbo formation of Eocene to uppermost Cretaceous age. The structure is a narrow tight anticline, considerably faulted. Productive area is still undefined. Surface conditions suggest the field may be about 6 km. (3¾ miles) long, but under a kilometer wide.

South Petrolea dome.—Drilling on the crestal part of this structure is yet inconclusive. There is one small well on the eastern flank where a little production has been found behind a fault.

Barco concession is held by Colombian Petroleum Co. subject to a royalty to the government of 10 per cent of the gross production in the field or 6 per cent at Covenas, and an overriding royalty held by the Barco family and their assignees of 5-5/6 per cent in the field or 3½ per cent at the seacoast terminal. Colombian Petroleum Co. is owned 99.762 per cent by Texas Corp. and Socony-Vacuum Oil Co., Inc.

Capt. T. Rieber, Texas Corp. chairman, observes opening of well on Barco concession

Photo Courtesy Life (Pictures, Inc.)



Topping unit of Gewerkschaft Deutsch Erdoel, at Hanover, Germany

European War to Fall Chiefly

By L. DAVID WOSK

This article is the concluding installment of a discussion of the subject which began last week. The present article goes into the matter of synthetic production, transportation, storage, and protection of supplies from hostile attack. It is the author's opinion that the wartime demands for oil will fall most heavily on the exporting nations of North and South America, and particularly the United States.

THE conversion of coal into petroleum products either by direct hydrogenation or treatment of its primary tars has been perfected in Germany and received its largest application there. In her economy of enforced self-sufficiency, cost, even during peacetime, has scarcely been considered. Impartial studies made by the Falmouth committee, the special committee of the English Labor Party, Sir David Rivett for the Australian Government, and confirmed by the German I.G. Farbenindustrie and Ruhrchemie, A.G., have estimated the factory cost of 1 gal. of gasoline at 20-30 cents. The large variation is due to extreme variations in coal-mining costs. An average cost figure of 25 cents per gallon is considered conservative. Thus it can be seen that synthetic fuels are several times as costly as petroleum fuels. Cost becomes a secondary factor during wartime, however.

Table 6 shows the extent of production of synthetic fuels in each of the nations of Europe during 1937, as well as the type of raw material used. Czechoslovakia's production of 12,000 tons of benzol and 50,600 tons of alcohol has been included with Germany. Poland is shown intact, but must now be considered as divided between Germany and the U.S.S.R., in proportions as yet unknown.

A study of Table 6 indicates that with the exception of Germany, no major power produces sufficient synthetic combustibles to materially affect its peacetime requirements and during wartime, the quantity becomes negligible. While other nations did not increase substantially the production of synthetics during 1938, the position of Germany increased as noted:

	1937	1938
Gasoline	800,000	1,700,000
Benzol	450,200	550,000
Alcohol	262,900	250,000
Total	1,513,100	2,500,000

Germany, especially after the conquest of Czechoslovakia and Poland, is the only major belligerent of Europe with sufficient coal reserves to materially extend the production of synthetic fuel from this source. Because of Germany's special position in Europe with respect to unlimited coal resources that theoretically could go into the manufacture of gasoline, special consideration will be given to her possibilities.

The main points to consider are the extent of the possible supply (sufficient only in Germany) and the dislocation of other vital industries in the manufacture of large quantities of substitute fuels during wartime. Both alcohol and benzol are diverted from fuel uses to that of munitions manufacture during war, thus the fuel burden is increased.

Germany's minimum wartime needs being estimated at 20,500,000 tons annually, and her 1938 crude-oil production, plus her effective synthetic productions being 2,328,000 tons (628,000 crude plus 1,700,000 tons synthetic gasoline*), the net deficit of 18,172,000 tons is indicated. What are the possibilities of supplying this deficit, assuming that the raw material (lignite and brown coal) is present and cost is not a factor in wartime?

*Alcohol and benzol not included as they are diverted to munitions manufacture during wartime.

TABLE 6—PRODUCTION OF SYNTHETICS—1937
(In tons)

Country—	Alcohol (beets, potatoes, etc.)	Benzol (coal)	Gasoline (coal and lignite)	Gasoline (shale)	Total
Germany	262,900	450,200	800,000	.....	1,513,100
Esthonia	.....	.....	.....	7,300	7,300
Lithuania	1,294	.....	.....	.....	1,294
Hungary	10,516	3,100	.....	.....	13,616
Poland	7,955	10,000	.....	.....	17,955
Latvia	2,154	.....	.....	1,300	3,454
Yugoslavia	3,806	.....	.....	.....	3,806
Belgium	.....	36,700	.....	.....	36,700
France	153,400	80,000	13,000	1,500	247,900
Great Britain	16,000	230,000	122,000	26,000	394,000
Italy	37,000	.....	.....	.....	37,000
Sweden	15,247	500	.....	.....	15,747
Holland	.....	10,800	.....	.....	10,800
Finland	.....	200	.....	2,700	2,900
Switzerland	50	3,000	.....	.....	3,050
Total	510,322	824,500	935,000	38,800	2,308,622

In Germany, where technical efficiency is at the maximum, a minimum of 4.5 tons of coal is necessary for the production of 1 ton of gasoline. M. de Boulard estimates that Germany's requirements of synthetic fuels would approximate 18 to 20 million tons per year and in order to produce this from coal, it would be necessary to treat the tonnage of solid combustibles representing nearly the whole production of Germany, and this production is the largest on the continent. In other words, the entire coal production, most of which is used for other vital manufacturing purposes which must be maintained during wartime, would have to be diverted to the manufacture of petroleum products—a physical impossibility. This would also require a tremendous expansion in the construction of hydrogenation and refining equipment, which is impossible during wartime. Dr. Ivan Lajos, famous Hungarian economics expert in his book, "Germany's War Chances," estimates that the production of 1 ton of gasoline from coal requires 10 times as many men as would the production from oil. This is due to the mining and transportation requirements, etc. Again, from the standpoint of dislocation of personnel during wartime, it would be impossible to meet petroleum requirements through the extension of manufacture of synthetic fuels.

Synthetic Products Prohibitive in Cost

Dr. Georges Godeau, general director of Petrofine and prominent French authority, estimates that 4.5 to 6 tons of lignite are required per ton of gasoline. He estimates that for 1,000,000 tons of gasoline, an average of 5,250,000 tons of lignite is required. This would require 22,750 skilled miners. Thus, to meet the mining needs to furnish coal for synthetic gasoline requirements (18,172,000 tons), 415,000 skilled miners would be required. Further, he estimates that the skilled

Oil Demands on U. S.

labor requirements in the hydrogenation factories would be 240,000 additional. It is quite apparent that these figures cannot be reached, especially during wartime. Even during peacetime Germany suffered from a shortage of both skilled and unskilled labor, particularly skilled miners. Importing large numbers of unskilled, forced laborers from conquered Poland and Czechoslovakia offers no promising solution for work requiring skill and experience. It is clear then that the manufacture of synthetic combustibles cannot materially improve the conditions for any major European belligerent during wartime, even though supply of raw material is assured and cost is no material factor.

Having examined the production of crude oil and also the possibilities of its extension; the production of synthetic combustibles and the possibilities of their extension, what is the position of the major powers in Europe, especially the present belligerents? Table 7 shows the entire peacetime production and consumption of all products with a percentage relation between them. The wartime requirements are also shown and internal production balanced against them on a percentage basis. All figures are for 1938, in tons.

Both Poland and the Soviet Union have been omitted from Table 7. The condition and ownership of Poland's petroleum and synthetic production is not certain at the present writing, and the Soviet Union is a highly improbable source of supply to any of the present belligerents.

In the event that the Black Sea should be closed for the shipments of oil from Rumania to the Allies and the entire surplus was diverted to Germany, her total production plus Rumanian imports would be 8,324,000 tons or 39.6 per cent of her wartime needs. Should she try to take these fields by force, they would undoubtedly be destroyed. In such an event, the fields could not be placed on the present scale of production in less than 2 or 3 years, if ever. In the event Italy should join with Germany in her present venture, the Axis powers' combined production (including Rumania) would be reduced to 28.5 per cent, or without Rumanian production to 10.8 per cent of wartime needs. It is quite apparent that, while Germany's internal position with respect to both crude and synthetic production is better than that of her opponents (negligible for wartime needs), the superiority ends at this point. The maritime blockade of Germany on one hand and the easy access to oil from both colonies and the open market gives Great Britain and France a marked advantage—providing, of course, that the world can supply the wartime requirements. This question will be discussed later. In the meantime, is it possible that the nations of Europe have stored large quantities of petroleum products and if so, how safe are they from destruction?

Every major power of Europe has an established policy compelling petroleum refiners or importers to maintain storage stocks equal to approximately 50 per cent of their normal deliveries each year. Thus for the major powers of Germany, Italy, France and England, the total nominal storage is approximately 14,500,000 tons. A study of the Soviet Union's exportable surplus, compared with her actual exports, indicates the piling up of large stocks there. The imports of gasoline to the Soviet Far East from the United States do not indicate a lack of petroleum but rather a rail transportation saving across Siberia. In addition to the known civil storage throughout Europe, there is an unknown military reserve. This is not large and in the main is not in the form of highly refined products. Evaporation losses with consequent deterioration preclude large stocks of aviation gasoline. This foreshadows another problem in the event refineries are destroyed—a problem to be discussed later.

Inasmuch as the wartime requirements of the major belligerents of Europe exceed 7,000,000 tons per month, the existent storage represents approximately a 2-month supply. It is exceedingly doubtful if the secret military supplies would add 1-month supply. One must not be misled into believing that these stocks will be exhausted in 60 of 90 days because, in the initial stages of the war, full use of mechanized forces will not be made. Also, storage will be supplemented in varying degrees by imports or domestic production.

The financial difficulty of storing tremendous supplies of petroleum for use in an extended war is tremendous and for most nations, such as Germany or Italy, impossible. The German authority, Friedensburg, estimates that the cost of construction of storage plus transportation would be $15 per ton, equal to $2.10 per barrel. Thus, a supply for 1 year of war for Germany and Italy would be over $300,000,000 and $125,000,000, respectively, fantastic figures for them. For England and France, the cost would be $530,000,000 and $300,000,000, respectively, also impossible.

The storage problem will be commented upon briefly because obviously, some working storage is required during wartime. The storage types contemplated, construction difficulties encountered, together with new developments are of special interest at the present time. Placement of storage with respect to zones of military activities and protection are vital problems.

Storage, generally speaking, is of two types—surface and subsurface. Theoretically, subsurface is the ideal solution, but in practice it has encountered great practical difficulties. Attempts have been made to install ordinary tanks in huge underground chambers. Dampness, with resultant corrosion, has discouraged this method. Gas leakage in the confined space creates an un-

(Continued on Page 39)

TABLE 7—PRODUCTION AND CONSUMPTION OF PETROLEUM PRODUCTS

Country—	Production			Consumption			
	Crude oil	Synthetics*	Total	Peacetime	Per cent	Estimated wartime	Per cent
Germany	628,000	2,500,000	3,128,000	7,125,929	43.8	21,000,000	14.6
Rumania	6,870,000	.....	6,870,000	1,674,046	411.3	(†)	....
Italy	13,000	37,000	50,000	2,334,690	1.7	8,400,000	.6
Great Britain	1,000	394,000	395,000	11,945,701	0.0	36,000,000	0.0
France	80,000	247,900	327,900	6,993,772	4.7	21,000,000	1.6

*Of these products, during wartime, the benzol and alcohol products should be subtracted. However, the author, in the interests of conservatism (assuming that munitions production will not require these products for some time) has permitted the total to count as fuel. †Rumania, not being mechanized and not being a major belligerents, cannot be considered in the same way. Her excess oil will go to one or more of the major belligerents—a condition to be considered later. (Figures in tons.)

International News photo

Right: This London petrol station is giving service as usual despite the war, but all possible precautions have been taken to protect the pumps. Stacks of sandbags are piled around them

Eastern, Gulf and Pacific Ports Lack War Orders

NEW YORK, Oct. 17.—Petroleum export markets followed routine lines during the first 2 days of this week. It remained impossible to point to any war-inspired increased demand except in lubricating oils and to a lesser extent in gasoline and fuel oil. This increased demand, however, is following lines previously indicated in September and the first half of this month.

There has been practically no open chartering in the tanker market for trans-Atlantic movement. Rates for coastwise movement remained unchanged at 32 to 35 cents per barrel. Several boats have been fixed during the past 2 weeks for the Aruba and Curacao run to North Atlantic ports for 22 cents per barrel.

All markets on the Atlantic Coast are unchanged from last week. There is a firm tone to the kerosene market and also in residual fuel oils which may indicate that another advance is in prospect for these two products. Domestic burning oils are also strong in the domestic market and fractional advances in both the tank-car and tank-wagon markets of the past 10 days are well supported.

It is known that the inquiry from the French Government for 300,000 to 400,000 tons of residual fuel oil, which developed shortly after declaration of war, has been satisfied. Unconfirmed reports are it was filled in Netherland West Indies from Venezuelan crude. No additional direct government buying, or inquiries, have developed from France or Great Britain. The convoy system, by which American refiners expected business to be stimulated, may be temporarily retarding shipments. A limited number of naval vessels are available for convoy, necessitating coordinated movement of tankers.

Sinking of the French tanker not far from the Irish coast indicates that the convoy system is not yet functioning perfectly, and served to continue the caution by ship owners in making commitments for voyages in the danger zone. There has been no change reported in the tanker market. Several boats were reported chartered for coastwise movement at 32 cents per barrel for October and November loading, and three or four vessels were fixed in the Netherland West Indies-United States run at 22 cents per barrel. Several boat owners were asking 35 cents per barrel for coastwise voyages in November, but this has been paid in only one reported instance.

Gulf Coast Exports Off

HOUSTON, Tex., Oct. 16.—Export movement of crude and refined products from Gulf Coast ports failed to show any improvement in the past week. Slight easing of the tanker situation is facilitating coastwise shipments, but is not reflected in any new foreign trade.

Gulf Coast refiners and shippers so far have had no benefits attributable to the war. Inquiries received have been traced largely to speculators. Bona fide inquiries have been limited and actual new business from these less. Possibly advanced quotations of refined products as an aftermath of the production shutdown may have caused foreign buyers to withhold purchases for more favorable market conditions.

Exports of refined products during August from Gulf Coast ports totaled only 18,672,387 bbl. compared with 21,866,917 bbl. during July. Exports of crude totaled 16,436,993 bbl. during August compared with 20,120,764 bbl. for July. The total decrease during August was 6,874,301 bbl. A decrease also was recorded in coastwise shipments totaling 4,490,525 bbl., partly due to the production shutdown.

September shipments are expected to be materially under August. Reports for the port of Corpus Christi show exports of only 1,761,422 bbl. in September as against 2,055,496 bbl. for August. Of these, 511,340 bbl. in September represented products as against 985,884 bbl. in August.

Movement of oil out of Gulf Coast ports has been hampered by shortage of tankers, and substantial advances in tanker rates. Some independent buyers on the Atlantic seaboard have limited shipping pending easing of the situation. Tankers now are more available, which is expected to bring relief to Gulf Coast terminals in which materials, principally motor fuels, have been backing up.

Japan Buying in California

LOS ANGELES, Calif., Oct. 16.—The war has not exerted any direct effect on the California oil industry to date. The proposed neutrality bill may, however, prevent American tankers from transporting petroleum to British Columbia and operators may be obliged to charter foreign bottoms.

Amtorg Trading Co. recently dispatched 250,000 bbl. of gasoline and aviation fuel to Vladivostok, by the Russian tanker Azebaidjan and the American tankers W. S. Miller and W. H. Berg. There has been no increase in bunker-fuel consumption on the Pacific Coast that can be attributed to war conditions but on the contrary restricted movement of British ships to Australia and New Zealand traffic will reduce bunker fuel sales. More surprising is the news that Japan has chartered eight more Scandinavian tankers to carry California oil to Nippon. Several months ago the Japanese Government indicated it would terminate all foreign-flag cargo charters and depend on its own. Two of the fixtures, the Norwegian motor tankers Thorshavn and Nyholt, are for three voyages. Observers see an indication that Japan's recently increased contracts for California petroleum are due for a larger increase before the end of the year when the trade treaty with Japan is to be abrogated.

California marketers claim to have had no inquiries for cargoes destined for the war zone. Not a single tanker has left California for Europe for more than 60 days with the exception of three diverted to South America when war broke out. England will pick up cargoes in the Gulf Coast and along the Atlantic seaboard rather than in California.

COMING

Next Week . . . The

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Here are the answers to your questions on Illinois operations—geology, production, refining, transportation, economics. Forty pages devoted to an investigation of the area

Mexican Situation Still Awaits Negotiation

WASHINGTON, D. C., Oct. 17.—A possible move in the Mexican oil controversy was indicated today following a conference of Mexican Ambassador Dr. Don Francisco Najera and Under Secretary of State Sumner Welles. Josephus Daniels, ambassador to Mexico, planned to confer later in the day with Najera.

Senor Najera said that the oil situation was "touched on" and expressed the belief that developments affecting the oil market due to the war were likely to encourage a settlement. He said, however, that the Mexican Government had made the most recent overture and that it remained for the oil companies to take the next step.

Meantime reports from Mexico City say that transportation problems brought on by the war have caused the accumulation in Houston of $1,000,000 worth of petroleum products owned by the Mexican Government and consigned to Europe. Mexico, it was said, had sold all the oil it could produce this year but "is having some trouble just now getting tank ships to move it to Europe."

W. R. Davis, who figured in bartering expropriated Mexican oil to Germany and Italy, returned to the United States last week with the impression that the Italians will be of small benefit to the Reich as a neutral nation. His views were based on the vulnerability of Italian shipping to British and French naval patrols which control the entrance to the Mediterranean and to the lack of transportation facilities between the two countries. There is the additional factor of the Anglo-Italian trade agreement by which Mussolini obtains much needed British sterling, a supply that would be summarily interrupted.

Allowable and Shutdowns Retained for November

AUSTIN, Tex., Oct. 17.—The present state allowable will be retained during November, and Saturday and Sunday shutdowns will be continued, it was announced at the state-wide proration hearing today. Charles F. Roeser, president of the I.P.A.A., asked that the order be for a period of either 60 or 90 days, but the commission majority, Smith and Sadler, did not favor such an order at this time, and the new order will cover November only. It will not be issued for about a week.

The present proration method used by the commission in the East Texas field was protested by Sinclair Prairie Oil Co. as discriminatory against wells on the west side. Sinclair representatives suggested that to protect west-side wells against drainage, about half, or 58,000 bbl., of the 175,000 bbl. that can be distributed under the new proration formula should be taken from east-side leases and distributed among west-side leases. By dividing the field north and south, and granting wells on the west half higher daily allowables, it was said drainage caused by the water drive could be equalized. Sinclair Prairie favored retention of the 20-bbl. minimum allowable figure now being followed.

Green Canyon Line

FORT WORTH, Tex.—Shell Pipe Line Corp. is reported laying a 4-in. line from its trunk line to the Green Canyon-lime pool in eastern Baylor County.

N.S.W.A.-I.P.A.A. Meet in Ft. Worth

By D. H. STORMONT

FORT WORTH, Tex., Oct. 17.—Members of the National Stripper Well Association in their 1-day meeting here were told by their president, Jake L. Hamon, Dallas, that the outlook for stripper-well owners was very favorable at this time, but their position was still precarious. Conditions contributing to this situation he pointed out as: Increasing and reckless production in Illinois; indications on the part of state regulatory bodies that they might forget past experiences and let production get too high; attacks on legality of the marginal-well law and East Texas proration orders; the sizable amount of hot oil being produced, and lack of tendency on the part of refiners to reduce crude runs. To combat these influences he urged continuance of the association's fight against overproduction, and for ratable takings and equity between pools, and wider spacing in new fields.

In the second address of the morning session Executive Vice President H. B. Fell in his report summarized the past work of the association.

At the luncheon session, Ralph T. Zook, Bradford, Pa., discussed factors determining profitable secondary recovery operations.

The second paper was read by Roy M. Johnson of Ardmore, Okla., and dealt with the necessity for an adequate price for crude oil from stripper wells. Following these papers, reports from the various committees were heard.

The committee on constitution and bylaws was headed by A. J. Weideman, Mount Pleasant, Mich.; committee on credentials, rules and order of business, by W. E. Hull. James R. Snowden of Fort Worth was appointed to head the nominating committee, and Harold Neeley of Fort Worth, chairman of the resolutions committee.

The report of the nominating committee, unanimously adopted, follows:

President, Jake Hamon; executive vice president, H. B. Fell; secretary-treasurer, Howard J. Whitehill, Tulsa; vice president for California, George Terry, Los Angeles; for Kansas, Guy T. Berry, Independence; for Pennsylvania, Ralph Zook, Bradford; for Illinois, William Bell, Robinson; for New Mexico, Harry Leonard, Roswell; for Michigan, A. J. Weideman, Mount Pleasant; for Kentucky, Earl Wallace, Lexington, and for Oklahoma, Wirt Franklin, Ardmore.

The 10th Annual Convention of the I. P. A. A. will be fully reported in next week's issue of The Oil and Gas Journal

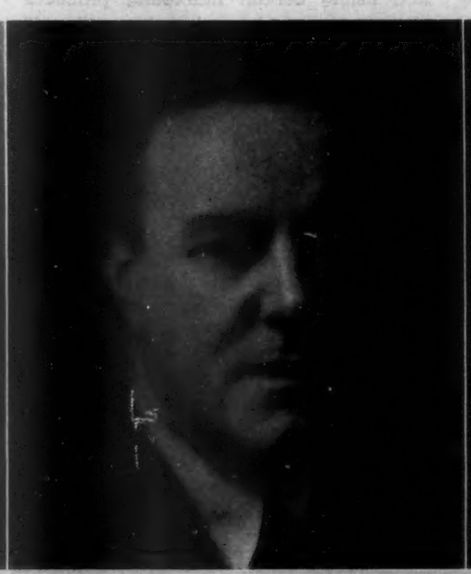
Above: Jake L. Hamon, Cox & Hamon, Dallas, Tex. Below: C. F. Buchner, executive manager, I.P.A.A.; Russell B. Brown, general counsel, I.P.A.A., and H. B. Fell, executive vice president, I.P.A.A.

Charles F. Roeser, president, I.P.A.A.

I.P.A.A. Session

The tenth annual convention of the Independent Petroleum Association of America opens Wednesday, closing with a banquet Friday night, which will be featured by an address by Representative William P. Cole, Jr., of Maryland, on "Oil From the Standpoint of National Legislation." As chairman of the House subcommittee on petroleum investigation, Mr. Cole will preside over the coming hearings on the oil-regulatory legislation now before Congress.

The I.P.A.A. conventions are primarily working sessions and the work began Tuesday afternoon with three of the several committee meetings. From these committees will come reports and recommendations to the general meetings.



H. H. Anderson, vice president, Shell Oil Co., Inc., who reported on working conditions

Federal Trade Asks Market

By HENRY D. RALPH

WASHINGTON, D. C., Oct. 17.—A thorough and complete investigation by the Federal Trade Commission "of the marketing practices in the oil industry, with particular relation to the marketing practices of the major companies," was recommended to the Temporary National Economics Committee Monday by the Trade Commission upon submission of a report described as "a survey of the character of questionable and perhaps illegal marketing practices, which allegedly permeate the entire retail marketing structure of the petroleum industry."

The spokesman for the Trade Commission, James A. Horton, chief examiner, stated in response to questions from Vice Chairman Sumners that the volume of complaints received by the commission over the last few years, as to every aspect of petroleum marketing, has now reached the point where the time is coming when some action must be taken to ascertain the facts through a comprehensive study.

"I understand that you want an investigation," said Vice Chairman Sumners, "but does the situation arise from competition among the major oil companies or from a desire on their part to put the independent retailer out of business?"

"I wouldn't say that it is due to a desire to put the independent retailer out of business, but he suffers from it," the witness replied.

The survey report filed with the committee alleged possible violations of the Federal Trade Commission Act, and the Clayton Act as to its antitrust provisions, and the Robinson-Patman amendment dealing with price discrimination and concessions to quantity purchasers.

The so-called "questionable practices," the legality or illegality of which the commission said is undetermined, presently operative in the marketing of gasoline, lubricants, fuel oil, tires, and motor accessories, and the laws likely to be violated thereby, were classified as follows:

1. Unjustified price differences and discriminations which substantially lessen competition, tend to monopoly, or injure or destroy or prevent competition. (Robinson-Patman amendment.)
2. Use of tying and exclusive dealing contracts. (Clayton Act.)
3. Price fixing in gasoline, lubricants, and fuel oil. (Trade Commission Act.)
4. Intimidation, coercion and other oppressive tactics employed by major marketers against wholesalers and retailers.
5. Misbranding, false and misleading advertising with respect to the grade, quality, and other characteristics of gasoline and lubricants. (Trade Commission Act.)
6. Discriminatory contracts with tire and motor-accessory manufacturers. (Clayton Act.)
7. Pump and tank equipment as leased, sold or loaned by marketers of gasoline and lubricants. (Clayton Act, Trade Commission Act.)
8. Intercompany sales.
9. A multiple number of related complaints which raise questions with respect to things that are not easily placed in a definite category. [Examples: (*a*) Exchange of gasoline between major companies; (*b*) price zoning; (*c*) retail margins; (*d*) discriminations accomplished by charging unwarranted rentals, or failing to charge adequate rentals for filling stations; (*e*) electric display signs; (*f*) advertising allowances not made available to all customers; (*g*) blacklisting; (*h*) unfair use of credit cards, and (*i*) refusal to sell.]

The commission's report stated repeatedly that "the problem, in effect, involves a comprehensive investigation of the industry and the commission has not had the funds with which to conduct an investigation to determine the facts."

Investigation into some of these practices is being made in regular course by the commission, it was stated.

Although stating that the survey, which was projected after several conferences with Justice Department officials, was supposed to present "all monopolistic and trade restrictive problems and questions relating to competition in production, transportation, and refining," it was noted that both the main conclusions and enumeration

PITHY PARAGRAPHS ON PERTINENT PROBLEMS . . .

LABOR: Dr. Isador Lubin, commissioner of labor statistics, told the committee it is self-evident that labor conditions in the industry are very good, which was supported by the testimony of H. H. Anderson, vice president, Shell Oil Co., Inc.

RAILROAD PROPOSAL: President W. S. Farish, Standard Oil Co. (New Jersey), asked that, since the railroad proposal to oil companies in the Southeast had been so confused, counsel for his company and Texas Corp. should state the facts. Chairman O'Mahoney indulged in sharp questioning.

F.T.C. INVESTIGATION: Examiner J. A. Horton, of Federal Trade Commission, submitted to T.N.E.C. a report of the commission listing certain marketing practices of "a questionable and perhaps illegal" character and recommending a complete investigation by the F.T.C. for which it has not had the funds.

N.A.P.R. PROBE: Following charges made by Kansas City retailers affecting the National Association of Petroleum Retailers, of which Wilmer R. Schuh of Milwaukee, is chairman, Mr. Schuh was ordered to appear Monday but secured a postponement until Wednesday.

WYOMING: W. H. Ferguson, vice president, Continental Oil Co., and Pierre La Fleische, Casper engineer, testified on the situation in Wyoming about which Chairman O'Mahoney is concerned.

Wilmer R. Schuh, chairman, National Association of Petroleum Retailers, subpenaed to answer charges by Kansas City marketers

Commission Investigation

of "questionable practices" related to the marketing phase of the industry.

Intending to show the "overall industrial atmosphere" which, he charged, major oil companies seek to create through propaganda by the National Association of Petroleum Retailers, L. A. Hartley, secretary of the Kansas City retailers' organization, listed seven concessions which he said Wilmer R. Schuh, Milwaukee, Wis., chairman, N.A.P.R., demanded at a conference in January 1939, as the price of his forbearance from organizing a rival petroleum dealers association. Included among the demands, said Mr. Hartley, was to "cease offers to appear before the Senate monopoly committee."

Chairman O'Mahoney immediately said Mr. Schuh should be subpenaed and he was ordered to appear Monday.

What had been, up to this point, a rather desultory presentation by the witness and his co-witness, A. W. Hewett, president of the Kansas City organization, at once took on life.

Mr. Hartley was relating the substance of the conference he said he and his board of directors had with Mr. Schuh January 19 last. A stenographic record was made from an adjoining room and a joint letter summarizing Mr. Schuh's demands was addressed on January 23 to the Anti-trust Division of the Department of Justice. Mr. Schuh demanded, Mr. Hartley said; that they:

1. Cease opposition to major-oil-company marketing methods.
2. Cease publicizing major oil companies as monopolistic.
3. Cease offers to appear before the Senate monopoly committee.
4. Cease offers of legal aid to members who feel themselves unfairly dealt with by major oil companies.
5. Cease giving voluntary information to the Department of Justice and the Federal Trade Commission involving major oil companies.
6. Recognize government indictments at Madison as the cause of present widespread demoralization of the retail gasoline market.
7. Observe a certain formula for fixing (upward or downward) retail prices of gasoline to be sold by members of the Kansas City association.

Mr. Schuh appearing with counsel on Monday requested and was given until Wednesday to discuss his predicament with counsel and prepare for his appearance before the committee.

The postponement was agreed to by Hugh Cox, counsel for the committee, who pointed out that the delay would enable committee attorneys to examine the records and papers produced by the witness in response to subpena.

Mr. Schuh was represented by Carroll L. Beedy and Thomas Jenks of the law firm of Alvord & Alvord, Washington, D. C.

Chairman O'Mahoney stressed, in announcing the committee's acquiescence in the motion, that it was the desire of the committee to wind up the oil hearings this week.

Messrs. Hartley and Hewett testified together, with Mr. Hewett presenting the following recommendations: Identification of filling station employes by the Bureau of Internal Revenue to recognize company control of management as evidence of employe status, and requiring companies to include minimum guarantees of station income sufficient to assure a living wage to lessee. Testimony also was offered to show typical earnings of a lessee-operator at 14.8 cents per hour against 97 cents claimed for lessee station operators by the companies. A wage of $1 per day for operators of the average neighborhood station was cited as typical although in exceptional instances $10 daily was realized.

The chaotic state of the station situation in Kansas City was attributed by Mr. Hewett to the pressure of major companies for gallonage which is what has decreased the retailer's margin.

The witnesses said they were urged to consider gasoline as a loss leader item and figure on taking their profit from oil, grease, tires, accessories and miscellaneous services.

The witnesses hammered at the tank-wagon price, contending majors should absorb some of the price reductions precipitated by price wars out of this figure rather than out of the margin which provides wages. The 11 majors operating in the Kansas City area "maintain identical tank-wagon prices to filling stations," they asserted. Mr. Hartley said the companies "should come down in the tank-wagon price" with the reduction spread between the retailer and the consumer.

Considerable committee interest was shown in a circular which Mr. Hartley attributed to the N.A.P.R. issued in September 1937. It dealt with problems confronting nonprice-cutting dealers and suggested methods to combat them, including a recommendation of "blockade" technique whereby dealers inspire mass concentrations of "customers" at price-cutting stations, who flash bills of large denominations in payment for 1-gal. purchases, insist upon all sorts of service and refuse to move their cars away from the pumps when served, rendering it impossible for the operator to do business.

The witness appeared little aware of the importance of this circular to the committee. Joseph O'Connell, the Treasury Department representative, insisted that the entire circular be included in the record.

When Mr. Hartley was queried as to a definite recommendation, he said: "Cut the cable and anchor which ties us to our suppliers." This contemplates, he said, elimination of the operator-lessee type of station, and regarding major or independent companies as employers, subject to all the responsibilities of taxes and security that classification connotes, when they interfere with station management.

Summarizing, Chairman O'Mahoney said: "Your complaint is that the independent local dealer is being pushed out of business and his place is being taken by a distributor who operates in a broader field than the local operator does?" Mr. Hewett answered in the affirmative. "What's the actual effect upon the consumer?" the senator queried. "The public interest is pretty much wrapped with ours," Mr. Hewett replied.

During the balance of last week the committee heard testimony on the difficulties of independent jobbers and retailers in competing with the majors, and from H. H. Anderson, vice president, Shell Oil Co., Inc., St. Louis, Mo., heard a detailed exposition of wages, working conditions, and the employment record of the industry.

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W. H. Ferguson Explains the Situation in Wyoming

TODAY was "Wyoming Day," with W. H. Ferguson, vice president, Continental Oil Co., Denver, Colo., and Pierre La Fleische, Casper, Wyo., petroleum engineer, formerly Wyoming State mineral supervisor, testifying as to the petroleum situation in the Rocky Mountain area and Wyoming in particular.

Mr. Ferguson occupied the morning with a straightforward recital of the operating problems in the territory, pointing the conclusion that peak prices for gasoline in Wyoming are reflective of higher operating costs all along the line, including production, refining and marketing.

"The cost of producing crude oil is considerably higher," he said, "than in many of the other oil-producing states with the possible exception of Montana."

The importance of transportation costs was emphasized by the witness, both as to inbound oil-well supplies and outbound rates on refined products, 80 per cent of which must be exported.

It was also pointed out to the committee that prices at refineries in Wyoming were determined on a "net-back" basis or according to the amount the refineries get back on all sales. Wyoming's surplus production is marketed to the south and east, he said, where it encounters competition from Mid-Continent producers and Atlantic Coast refiners.

Besides transportation costs, local marketing of gasoline is more expensive than in many states due to seasonal demand necessitating storage over winter months and accompanying expenses and high margins allowed jobbers and dealers to provide an adequate profit.

Chairman O'Mahoney concentrated much of his questioning on phases reflective of cost of gasoline to consumers.

Outstanding in Mr. Ferguson's testimony was mention of the expanded operations of truck haulage of gasoline which, he said, would compel railroads to reduce rates if they desire to continue to haul any of this traffic. Insistence by the state upon refining Wyoming crude in that state contributes to the problem of marketing products which the industry refines there, he stated.

(Additional Testimony on Page 36)

Many Sections Increase in

SINCE the first of the year there has been a steady increase in the number of wells drilled. At this season when a general decline is to be expected, there are numerous areas where definite increase in drilling activity is foreseen. The extent to which drilling operations are likely to be undertaken in the last quarter of the year is indicated by the present plans of producing companies. On the basis of data gathered in a survey of the situation existing in this country and abroad, predictions can be made regarding areas where increased drilling may be expected. At this time, when there is no conspicuously large drilling campaign under way at any one field, it is anticipated that increases in drilling will occur over wide areas where extensions to present fields call for further development and where wildcatting has been stimulated. In line with what has been apparent in recent months, substantial increases in drilling activity are in prospect for the Gulf Coast of Louisiana and those fields in Venezuela and Colombia which have been furnished with pipe-line outlets this year. Although drilling in Caribbean countries will be accelerated by certain developments in the war situation, whatever the turn of events may be, development and exploration programs will go forward. Definite increases are forecast for particular areas along the Gulf Coast of Texas, West Texas, eastern Texas, New Mexico, Oklahoma, Kansas, Illinois, Indiana, and Michigan. Without attempting to foretell the total extent of all drilling operations in the last quarter, a review of available data is presented in this article which indicates the areas where increased drilling activity is anticipated.

There will be an upturn in South American drilling and producing activity during remainder of this year and in 1940. This will be largely centered in Venezuela and Colombia. An increase in drilling is expected to range from 15 to 35 per cent, depending upon the European situation. Irrespective of war developments, however, the Venezuelan and Colombian drilling activity will definitely increase, according to the opinion of equipment suppliers and operating companies interested in those two countries.

Venezuelan Program

In order to utilize a reasonable extent of the new Venezuelan line's capacity the companies interested in this market outlet will be forced to increase their drilling program in eastern Venezuela. In addition to the Oficina field, which is the major assured supplier of traffic for the line, several intermediate areas, almost midway to the Guanta terminal, and including El Roble, Santa Ana and San Joaquin, are areas in which production has been developed and which will be placed under more intensive exploitation. Connecting lines from the three intermediate fields to the trunk pipe-line system will be installed in the near future but will play a relatively unimportant part in supplying crude until additional wells are drilled. Since International Petroleum Co., a subsidiary of Imperial Oil Co., Ltd., of Canada and the Dutch-Shell group have an interest with Mene Grande in Oficina production and since Standard of Venezuela holds acreage in the Oficina district, proven so far by only one well, the full force of the large international companies may be thrown behind drilling in that territory. In addition to Mene Grande and the Standard of New Jersey subsidiaries, the Texas Co. holds a concession in the El Roble area adjacent to Standard of Venezuela's discovery producer on Pantepec acreage and is now drilling a test well which should reach the productive zone within a month.

Companies are unwilling to declare definitely at this time that the increase in Venezuelan drilling activity in 1940 will exceed 15 per cent. Many contingencies centering around the European situation as well as demand from neutral countries supplying materials to the belligerents enter into the picture. One important contingency is the continued neutrality of Rumania and Italy. In the case of Italy its position has an important bearing on continued movement of supplies through the Mediterranean Sea, the route through which petroleum from Iran and Iraq, amounting to about 140,000 bbl. daily, and from Rumania, approximating 75,000 bbl. daily, is available to western European powers. Drilling preparations and considerations in Venezuela at the present time are mostly in the form of preparation for situations which may develop in Europe. An increase of at least 15 per cent is virtually dictated as a normal procedure by the important operating companies because of the pipe-line completion.

Much the same set of conditions found in Venezuela apply to Colombia where Colombian Petroleum Co., equally owned subsidiary of the Texas Corp. and Socony-Vacuum Oil Co., Inc., is about ready to start deliveries through a new 12-in. pipe line linking the Barco concession with the port of Covenas on the western shore of the country. First oil will be run through the line this week and the first tanker is expected to load about the middle of October.

Practically all foreign operating companies have been extremely active in the past 4 or 5 weeks in analyzing their equipment requirements for long-term periods, several as far as a year and hardly any for less than 6 months. The projection of equipment requirements for several months is based on two important considerations. In the first place, current purchases or orders of equipment, consisting mostly of steel in one form or another, are a hedge against price advances. In the second place, companies anticipate that deliveries may be expected with reasonable promptness by placing orders immediately and that delays in normal or accelerated drilling requirements may be avoided.

Drilling activity will be expanded in Trinidad but the natural limitations of reserves there indicate that the increase will be no more than 20 to 30 per cent, despite the fact that the island is the chief producer in the United Kingdom's dominions.

New Drilling in South Texas

In South Texas drilling contractors report a substantial increase in the number of inquiries from operators, mostly independents, for new drilling. One of the larger contractors said his company had more inquiries recently than at any time in the last few months.

Indicating also that there might be a need for additional drilling, one of the larger major companies is considering the possibility of advancing some of its prospective 1940 drilling to this year. This company is making up its budget for drill-

Center: Heavy rig with rotary table driven from draw works. Bottom left: Late-model draw works with rotary driven by engine located below the floor

Anticipate an Drilling Work

ing and development appropriations for next year, calling for more intensive development.

An early revival of drilling activity is expected for the McCampbell field, at Aransas Pass, Aransas and San Patricio counties, Texas.

East White Point, San Patricio County, at present the most active field in the lower coastal district of South Texas, is expected to remain busy as a result of extensions of production that are compelling new drilling.

In South Louisiana there has been no decline or any indication of an early letup in drilling. In this district, drilling has been consistently on the increase, with good prospects now for more general, as well as more intensified, local development. There now are more than 175 rigs active in the district, the greatest number on record, and an increase of more than 25 over the number of rigs running a month ago.

Although much of this sharp increase is due to the drilling boom getting under way at Golden Meadows, La Fourche Parish, Louisiana, and new activity at University, East Baton Rouge Parish, Louisiana, drilling generally continues on the upgrade. A new drilling play looms at New Iberia, Iberia Parish, Louisiana, where new production recently has been opened in shallow-flank sands on the east side of the dome, and in deep sands on the west side. This field only lately has completed an active drilling play in development of flank sands around the south, west and north sides. Seven rigs now are running and more rigs are due to be brought in.

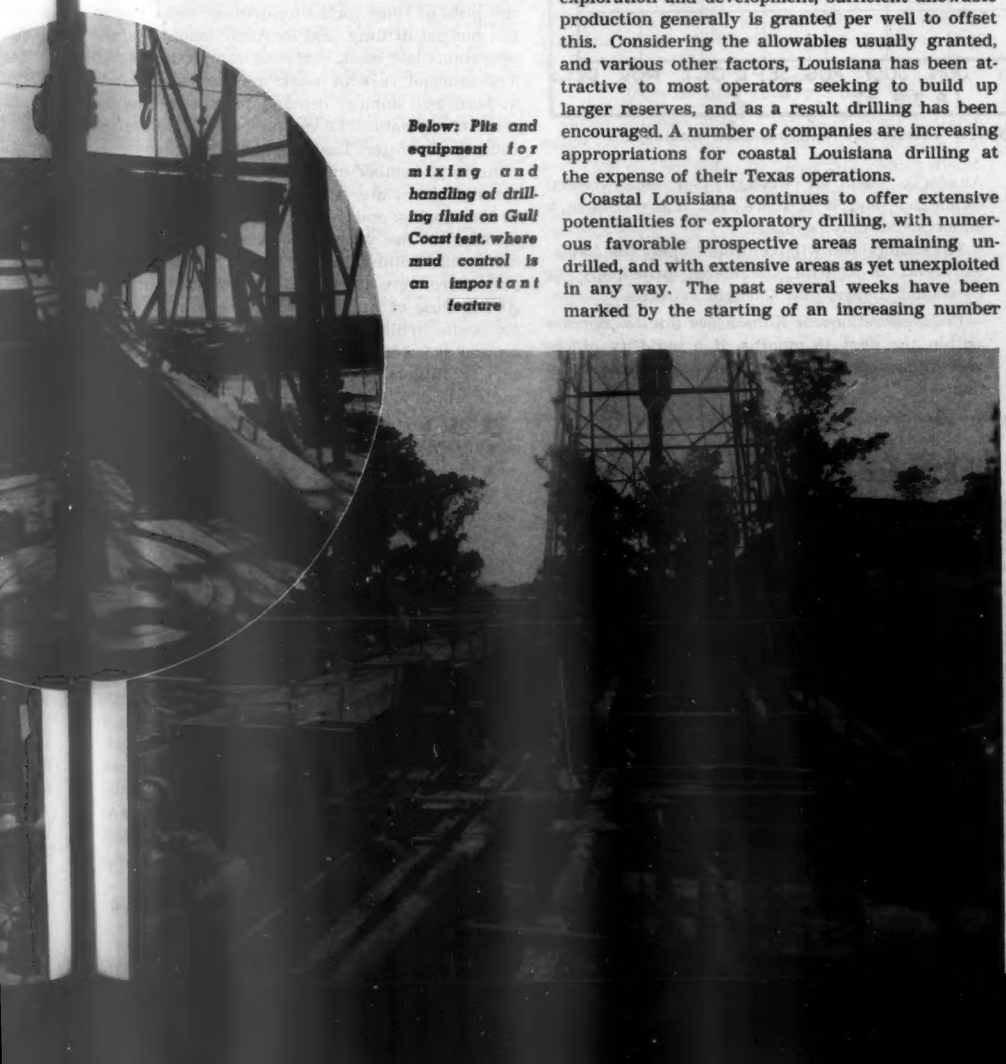
More than 20 rigs now are running at Golden Meadows, and additional new operations are being started. Permits have been taken out for more than 120 well locations. So far, no spacing restrictions have been imposed on the field, and with development taking in the townsite having numerous small tracts, intensive drilling is in store.

Ten rigs have been running at Eola, Avoyelles Parish, coastal Louisiana, and although limits of the field have been partially defined, sufficient productive and potentially productive area remains to be developed and no early letup in activity is expected there. The University field, another of coastal Louisiana's more active spots, also is reasonably assured of continued drilling at about the present intensity.

Although operators are handicapped in many parts of coastal Louisiana by difficult and costly exploration and development, sufficient allowable production generally is granted per well to offset this. Considering the allowables usually granted, and various other factors, Louisiana has been attractive to most operators seeking to build up larger reserves, and as a result drilling has been encouraged. A number of companies are increasing appropriations for coastal Louisiana drilling at the expense of their Texas operations.

Coastal Louisiana continues to offer extensive potentialities for exploratory drilling, with numerous favorable prospective areas remaining undrilled, and with extensive areas as yet unexploited in any way. The past several weeks have been marked by the starting of an increasing number of exploratory tests in previously undrilled areas, particularly in southeastern Louisiana. The next several months also are expected to see intensified wildcatting development along the Sparta-Wilcox trend.

The estimates for North Louisiana and Arkansas show that there is a definite upward trend in drilling activity. Shallow drilling is also increasing, to keep pace with the more important deep tests. There is a possibility, or rather a strong probability, that Cotton Valley, Louisiana, will go on unitization before the end of the year. This will entail the drilling of several flank wells and input wells at the top of the structure.



Below: Pits and equipment for mixing and handling of drilling fluid on Gulf Coast test, where mud control is an important feature

Wildcatting in Mississippi

More active wildcatting also is expected to get under way in Mississippi. With commercial production now established in the state with the recent completion by Union Producing Co. of a good well on the Tinsley prospect near Yazoo City, Yazoo County, attention has been directed to the potentialities of that state generally. Mississippi and Alabama are on the increase, and if the two tests at Yazoo City bring in extensions to the field, drilling will double in that area. The psychological effect of the Mississippi oil discovery is to increase interest in the whole area, and drilling might be expected to double over the next few months.

Altogether, active rigs now in this district are as follows (comparison is with the number active October 1):

	Oct. 9	Oct. 1
North Louisiana	55	42
Arkansas	38	27
East Texas border	9	7
Mississippi	11	5
Alabama	3	0
Florida	1	2
Georgia	0	0

Drilling in West Texas over the last quarter will be slightly higher, and the year's summary will find that practically as many wells will have been drilled as in 1938. In the most active field of the Permian basin, Wasson-Bennett, drilling activity is expected to be at just a slightly higher rate than at present. In the Seminole and Slaughter fields drilling will be at slightly higher rates. In the South basin area most drilling will be confined to the Foster and North Cowden fields near present levels, with a slight decrease in activity shown in the Goldsmith field. In Pecos County development of the Apco field will increase drilling somewhat.

Eddy County, New Mexico, will show a substantial increase in drilling during the last quarter, due mainly to the attractive drilling of the Loco Hills field, where over 100 wells can be drilled in practically proven territory, being completed at the comparatively shallow depth of 2,600-2,800 ft. for allowables of 65 bbl. daily.

Wildcatting in Southeast New Mexico will be mostly in Eddy and Chaves counties, but there is no expected change in the amount of work.

Since new pipe-line outlets have been announced for the Hull-Silk area, the Rogers-Rogers pool and the Halsell field, development of these pools will be speeded up somewhat.

North Texas has received a very intensive wildcatting play during this year, which has resulted in the opening of several small fields, and this high rate of activity is expected to continue. Major companies are continually moving into this area, taking large blocks and working them with geophysical instruments. Several blocks are now in this stage in northern Jack County and in Clay County.

In eastern Texas, excluding the East Texas field, a slightly higher drilling rate will probably take

place during the last quarter, with the majority of the activity taking place in Navarro Crossing, Flag Lake and its extension area, Long Lake and Talco fields. Wildcatting is expected to continue at a more intensive rate during the last quarter along the Balcones fault, in the East Texas basin and at other known structures.

Oklahoma Operations Will Expand

Field operations in Oklahoma are expected to show a slight increase in the remaining months of this year.

The contiguous Lincoln-Payne-Logan County, Oklahoma, district is expected to be one of the busier areas. Conservative development will continue in the Ramsey pool, Payne County, Oklahoma, with perhaps a bit more activity in the nearby Coyle pool, Payne County, Oklahoma. Numerous wildcat tests are expected to be drilled in that sector, including adjacent corners of Lincoln and Logan counties, as operators seek additional Wilcox production similar to that at Ramsey and Coyle. The recent Prue-sand discovery in northeastern Lincoln County will give impetus to the search for other Prue-sand pools in that county, already encouraged by the Sac and Fox development. Lincoln and Payne counties are due for a real going-over as operators seek other Prue pools. Recent extensions in the Skellyville area also are expected to help generate the Lincoln revival.

Creek County, Oklahoma, currently vying with Pottawatomie County, Oklahoma, for title of busiest Oklahoma county, will continue a busy spot the next 18 months. Most of the work in this county will be done by small independent operators who do not expect to find big fields, but are looking for small "pimples" overlooked by the big companies in the heydey of Creek County development. The revival in Creek County may have a wholesome effect on neighboring Tulsa and Pawnee counties, where new production will be sought in old areas. Most of the wells drilled in these counties are comparatively shallow and, as a rule, are drilled with small machines and spudders. They use casing, pumping equipment and other material, however.

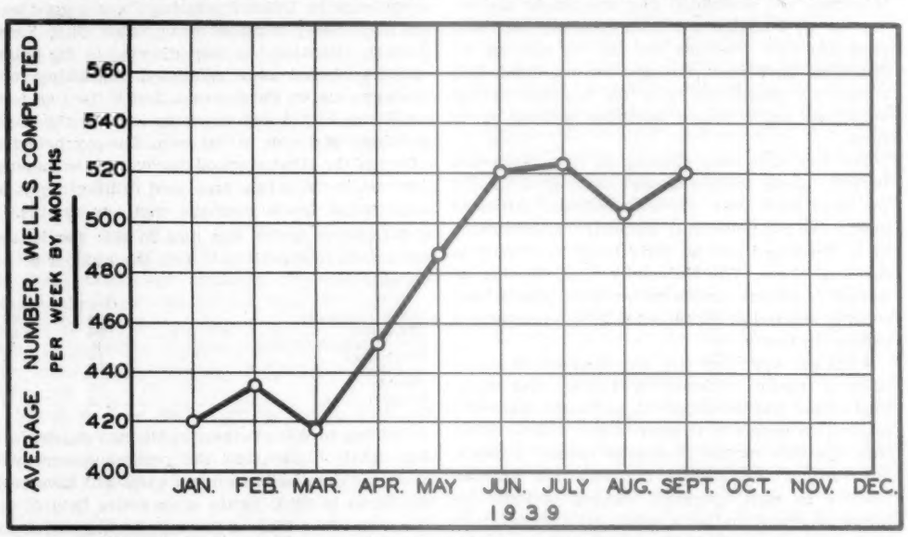
The busiest general area is and will continue to be the Pottawatomie-Seminole-Pontotoc County, Oklahoma, district. The St. Louis field in Pottawatomie County has been the business spot in Oklahoma for more than a year, as operators reworked, plugged back or deepened old wells, and drilled new ones seeking production passed up in the boom days when Wilcox sand was the goal of most tests. The field has been given several extensions the past year, opening up a considerable amount of new area that will be developed the coming year. One of these extended the field across the line into Seminole County, an area where comparatively big production was found and where a large number of new tests may be drilled. Pontotoc County may show an increase, especially if wildcats being drilled in the Fitts and Bebee districts are successful. A pool of some importance is being developed south of Konawa, near the point where Pontotoc, Seminole, and Pottawatomie counties join, and it will see its greatest development within the next year.

The busy areas in southwestern Oklahoma are and will continue to be the Cement field in Caddo County and the Tipton-Altus area in Jackson County. Numerous extensions and discoveries of new pay zones assure an active program at Cement for some time, with a townsite campaign just getting under way. The Jackson County district recently has been revived and is expected to continue to be active in 1940.

Numerous wildcats are due to be drilled in the Anadarko basin of western and northwestern Oklahoma—and it is there that many believe a major strike may be made.

Wildcatters also will continue to play the Nemaha trend in central Oklahoma, principally in Cleveland, Logan, and Garfield counties.

Field operations in Kansas are due to increase within the next 18 months, if a majority of observers are correct in their analyses of the situation.



Upward trend in drilling operations in 1939 is indicated by well-completion records

A forecast of activity immediately ahead in the United States and foreign countries indicates that there will be increased drilling the remainder of the year. There will be a tendency toward extensive prospecting undertaken by larger companies

There are innumerable one and two-well pools in western Kansas awaiting development. Given an increased demand for crude oil, better prices and an increased allowable, western Kansas will have a real boom—at least approximating that of 1937-38. Hundreds of locations are waiting to be drilled in proven areas along the Central Kansas uplift—if and when market demand and allowables justify.

Cowley County, in southern Kansas, will be one of Kansas' most active areas during the next 18 months. Discovery of Arbuckle production in the Hittle pool, where numerous 5,000 to 20,000-bbl. wells have been completed, has given that old county, once called the graveyard of wildcatters, a new lease on life. The new Wilson pool, giving some promise of being another Hittle, and other recently discovered productive sectors are due for considerable drilling.

The Cunningham-Cairo district in Kingman and Pratt counties has experienced a revival in recent weeks and gives promise of being one of the more active Kansas areas for some time. Some operators believe Pratt County is due for considerable wildcat exploration this next year. Barber County to the south is expected to share in this revival, if it comes.

The Bornholdt pool, opened more than a year ago in southwestern McPherson County, recently was revived with an extension into Rice County and extensions in McPherson. It now gives promise of becoming an important chat pool, and it is likely numerous tests will be drilled there.

Indiana, Illinois and Michigan

A total of 120 new operations were reported in a recent week in Illinois, including locations, rigs up and wells drilling. This is the largest number of new operations started in any week since the beginning of the Illinois basin drilling campaign and brings the total of operations above 500 at the present time, including drilling wells, rigs up but not yet drilling, and locations made. The new operations last week exceeded completions by 52. The unusual rush of work may be viewed from at least two angles: demand for the oil and the wish of operators to complete wells before the coming of winter. Last fall drilling began to decline in November and new work was slowed up through the winter and until the rains were over in the spring and roads made passable. At the opening of the year there were 50 rigs up and 350 wells drilling in the state. At the close of July there were 42 rigs up and 347 wells drilling. At the close of August there were 66 rigs up and 400 wells drilling. At present there are 65 rigs up and 425 wells drilling. Meanwhile, since January 1, Illinois operators have completed 2,661 wells, oil, dry, and gas.

At the beginning of this year Indiana had 3 rigs up and 35 wells drilling. By the end of August there were 19 rigs up and 49 wells drilling. At present there are 20 rigs and 60 wells drilling. Meanwhile 215 wells have been completed, oil, gas, and dry. Wells are drilling in 28 Indiana counties from the Michigan State line down to the Ohio River. Operators have gone back into the abandoned northeastern oil fields of the state to seek production in formations more or less neglected in past years, but most of the new work is in southwestern counties.

More drilling permits have been issued this year in Michigan than in any previous year since oil was discovered in the state, the number having passed the 1,000 mark 2 weeks ago. Recent strengthening of the crude market in the southwestern Michigan fields should spur operators to continued activity especially in the Allegan and Kent County fields.

War a Major Factor in Rising Prices of Some Oil Products

By T. F. SMILEY

THE tightening crude market has had a tonic effect on refined products, and it has been a factor in the advances recorded by some refinery prices in recent weeks. Outbreak of the European war has exerted a more direct influence on refinery prices than on crude prices, but to separate that influence from others that have operated in the market would be difficult.

In some divisions of the refinery market prices began to rise weeks before war was declared. To what extent expectation of a war and its demand for oils were a factor is problematical. Not all refined products responded to the outbreak of hostilities in the same manner, nor did prices in different areas move in unison. That either sudden cessation of the war, or convincing indications of its prolongation, will have a marked effect on refinery prices there can be no doubt.

Lubricants and Wax Start Climb

In less than 2 weeks after war was declared lubricants and wax began to rise in spectacular fashion, and they still are rising. Mid-Continent bright stocks are commanding 6 to 8 cents a gallon more than they did in mid-August; neutrals, 4 to 5 cents more. Before the ascent started, these commodities, especially in the Mid-Continent and Middle West, had been weak for 2 years, and there were only minor changes in quotations.

Pennsylvania lubricating oils scored an even more remarkable rise. From January 1 to August 1, 1939, prices for Pennsylvania neutrals and bright stocks advanced only 1½ cents. In the past 6 weeks neutrals have shot upward 15 cents and bright stocks 10.

In the New York export market Pennsylvania Grade cylinder stocks have risen 10 cents since the war opened, and bright stocks 16 cents. These began their ascent in early August, however, and bright-stock quotations have more than doubled since then.

Gulf Coast lubricant prices have undergone less change, the advance in that area being 1½ to 2 cents. Quotations for pale and red oils for the domestic market in California have scarcely moved in 2 years.

Taking 124-126 white crude scale for illustration of the increase in wax prices, that material has risen since the last week in August from 2.85 to 5 cents in eastern markets and to 5¼ cents in the Mid-Continent.

Gasoline has had a varied experience. On the East Coast the first week of September that commodity recorded the first price advance it had seen since June. The total increase to date has been a half cent a gallon.

On the Gulf Coast both domestic and export gasoline made substantial gains. In the domestic market low-octane material has risen 1⅝ cents since September 1. The regular grade went up three-quarters of a cent, and then, under the influence of impaired ocean shipping, it lost an eighth cent. Export gasoline at the Gulf fared better. The regular grade rose 1⅞ cents, and held it.

In the Mid-Continent, where oil operations are not so sensitive to war clamor as in coastal regions, gasoline prices are where they were before hostilities started. California's domestic prices have not changed, but export quotations have risen a half cent to three-quarters of a cent.

Demand for aviation gasoline, which is not generally quoted and which usually is disposed of readily under contract, has been stimulated by the war. A cargo was moved the last week in September at 8½ cents, a new high.

Tank-wagon prices for gasoline have undergone no general advance, but leading marketers and distributors in the North Atlantic seaboard region raised these prices a half cent early in October, and Standard of Ohio raised those in Ohio.

Natural-gasoline quotations have gone up a quarter cent in both Texas and Oklahoma since mid-September. Those in California have not changed.

Heating-oil prices in the Mid-Continent have not changed consequentially since early August. On the East Coast, with New England homes lighting their fires, they have risen about three-quarters of a cent.

Diesels and Heavy Fuels Up

Diesel oils and heavy fuels have made marked gains. At the Gulf Coast diesels have advanced a half cent to 1⅛ cents. In California 24-plus diesel went up 20 cents a barrel the first week of October. Bunker C fuel to ships in New York Harbor has risen 10 cents a barrel since early September.

It should not be overlooked that all the influences improving petroleum markets have not carried prices beyond the level of reasonable profit, and some prices are still barely above the break-even point.

One difficulty encountered in trying to weigh the effect of war on refinery prices lies in the fact that no man knows what part of an advance should be credited to the war and what to the crude shutdown in six states last August. Just as refiners were beginning to appraise the benefits of the shutdown, the war broke out, confusing the situation. In the case of natural gasoline it seems safe to say that the credit should be divided about equally. It was estimated that the shutdown deprived the market of 1,000,000 bbl. of natural gasoline, creating at once a shortage, the results of which are felt still.

During the well shutdown large quantities of heavy fuel oils were used as cracking stock in the manufacture of gasoline, and that helped the heavy-fuel market. Besides that, it is estimated that consumption of heating oils during the coming winter may be 10 per cent higher than it was last year. Increase in consumption of heavy industrial fuels will be still greater.

War Holds Key

However, it is generally agreed that the war holds the key to refinery prices now. It has been the primary factor in the swift rise of the lubricants and wax, and it has been an important one in advances in other divisions.

The Gulf Coast is a pivotal point in the current market for gasoline, natural gasoline, and other products. Gulf Coast refiners have huge orders for gasoline, but can fill them with the greatest difficulty only, owing to conditions that have swept much commercial shipping from the seas. Some vessels are in the harbor, ready to take cargoes if and when conditions permit. As oil and its products have been declared contraband by both sides in the conflict, it is believed most of these boats will not load and leave on a trans-Atlantic voyage except under foreign charter, with assurances of indemnification in case of loss. Most of the craft are said to be from neutral European countries.

Once the congestion at the Gulf is broken—and refiners believe it will be—a period of brisk oversea business seems assured, with European requirements making such demands that higher prices will be inevitable.

Any gasoline urgently seeking markets at this juncture is probably that produced in East Texas, North Louisiana, or Arkansas. Up to about 3 years ago these areas moved their output to the Gulf at favorable freight rates. Refining capacity at the Gulf has grown, however, and plants close to ocean docks have taken much of the business that formerly went to the areas named, making it necessary to find outlets in northern states which make up Standard of Indiana territory. This has added to the competitive pressure under which refiners in the interior regions were operating.

It is assumed that if the war continues, a convoy system for the rela-

(Continued on Page 36)

How They Have Changed in 7 Weeks

Below are given prices, in force on the dates named, showing the rise that has taken place in lubricating oils and wax since the outbreak of the European war, along with the prices a year ago. It should be noted that other refinery products have not shot upward in this fashion and also that conditions at home have been an important factor in the improved position of the oils, including those used in the table.

	Aug. 31 1939	Oct. 17 1939	Oct. 17 1938
PENNSYLVANIA GRADE—			
Bright stock, 140-150, 8 color, 10 pour	.19	.285	.17
Neutral oil, 150-3, 0 pour	.185	.335	.17
White crude scale wax, 124-126	.029	.045	.0235
MID-CONTINENT—			
Bright stock, 190-200 D, 15-25 pour	.19	.26	.19
Neutral oil, 150-3	.09	.12	.09
White crude scale wax, 124-126	.0285	.049	.0225

STATE CAPITALS

TEXAS

F. W. FISCHER, EAST TEXAS INDEPENDENT OIL operator, last week followed Humble Oil & Refining Co. in an attack on the East Texas proration order, but on an entirely different basis.

As plaintiff and as his own attorney, Mr. Fischer filed suit in federal court, where Humble already had filed, asserting the invalidity of the East Texas proration order, on the grounds that it confiscates his property—the same general allegation as Humble. But there they part company.

Humble had charged the Railroad Commission, in fixing allowables in East Texas, gave insufficient weight to oil in place, generally measured by acreage drained by the well. Mr. Fischer charged the commission gave entirely too much weight.

He alleged no order prorating the field would be valid which is not based upon the producing capacity of a well. An operator "high on the structure"—in other words, with a lease in the best portion of the field, toward which the water pushes the oil—is entitled to produce all the oil originally under that tract and all the oil which gravitates to it, he asserted.

Mr. Fischer claims each of his wells is capable of producing and should be allowed to produce at least 50 bbl. per day, whereas the average now allowed him is 14 bbl. Cutting him that low through the week-end shutdowns is going "entirely beyond the necessities of the case," Mr. Fischer wrote.

He asked for a three-judge court to hear his attack.

Suit of the Humble Oil & Refining Co. seeking an injunction against enforcement by the Texas Railroad Commission of its recently promulgated proration order was heard at Houston before a three-judge federal court October 12. Attorneys were given until October 16 to present their argument in writing, following which an early decision is promised. The court hearing the case consisted of Circuit Judge Rufus E. Foster of New Orleans and District Judges T. M. Kennerly of Houston and William H. Atwell of Dallas.

CONTINUED DECLINE IN DRILLING PERMITS granted by the Railroad Commission was shown last week as only 116 permits for new wells were granted as compared with 173 the previous week and 184 the week before that. The Gulf Coast district with 40 permits led the state, while the Southwest Texas district with 27 was second. In West Texas only 14 permits were issued, the least number in many months and 19 less than the previous week. Four new wells were granted for the East Texas field, including three in Gregg and one in Rusk County, while 10 new locations were reported for the remainder of East Texas. Drilling on nine new wells was approved for North Texas and West Central Texas received 12. No permits were issued for the Panhandle.

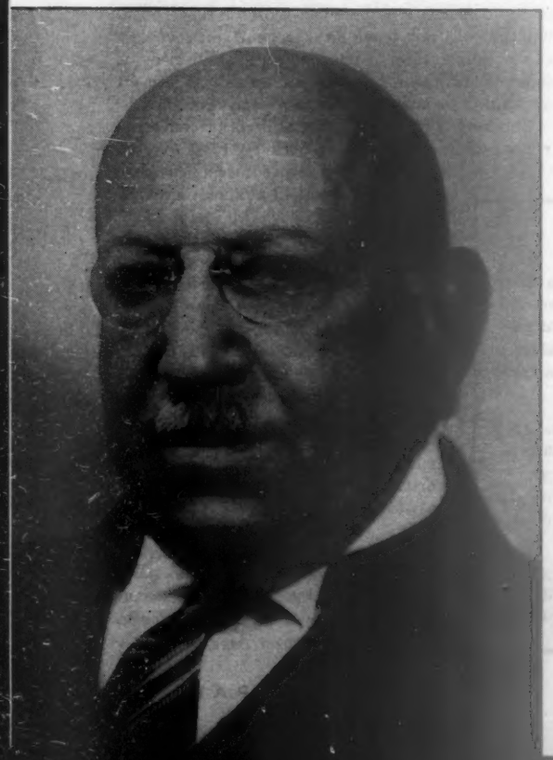
APPLICATIONS FOR INCREASED ALLOWABLES in several Texas fields were acted upon by the Railroad Commission with the result that increases totaling 48,517 bbl. were granted. This, however, does not mean that average daily production for the whole month of October will be raised that amount as most of the increases were effective October 11. Spread over the entire month, the increase would be substantially reduced, but for the remainder of the month there is only a difference of some 49,000 bbl. between the recommended figure set by the Bureau of Mines and allowable production, excepting any additional grants. When the state-wide order was issued for October, Texas' production was set about 84,000 bbl. below the bureau's figure. The increases will amount to about 35,000 bbl. daily on a 5-day week, leaving a margin of approximately 49,000 bbl. that could be granted without exceeding the Bureau of Mines figure.

Fields receiving increases, their old allowable (1), new allowable (2), and the amount of increase (3), are as follows:

Field—	(1)	(2)	(3)
North Ward	8,685	10,185	1,500
Keystone (lime)	2,714	3,214	500
Gulf-McElroy	7,394	8,394	1,000
Estes	10,029	11,529	1,500
Goldsmith	35,781	37,281	1,500
O'Hern	5,888	7,202	1,314
Turkey Creek	5,193	7,371	2,178
Novice	165	255	90
Akard	87	129	42
League City	1,777	2,500	723
Panhandle	88,241	107,841	19,600
Sand Hills	1,966	2,834	868
Waddell	2,310	2,810	500
Northwest (Sharon)	435	1,435	1,000
Manvel (Oligocene)	4,793	7,894	3,100
Church-Fields	7,097	8,097	1,000
K.M.A.	33,751	42,189	8,438
Hull-Silk	1,642	2,053	411
Sikes	247	309	62
Marland-Finley	.....	10,866	2,742
Appling, Bowles and View	.....	.....	499
Total			48,517

Applications for increased allowables for the following (and the amount in question) were rejected by the commission, although no orders had as yet been issued at the first of the week: Rogers field, Montague County, 1,000 bbl.; Placedo, Keeran, Heyser, McFadden, East Placedo, and Greta in Victoria and Refugio counties, 100,000 bbl. per month; Benavides field (Parr sand), Duval County, 900 bbl. weekly; Longhorn field of Duval County, 100 bbl. per well during a 7-day week; Loma Novia, Hoffman and Clarkswood fields in Duval and Nueces counties, 175,000 bbl. per month; Plymouth and East White Point in San Patricio County, 108 bbl. per well during a 7-day week; Saxet field of Nueces County, 8,500 bbl.; the West Bryson field, Jack County, 51 bbl., and Loving field of Stephens County, 55 bbl.

RESCINDING OF ITS AUGUST 27 ORDER, which required that the production of all wells that could not be shut down during the 15-day holiday because of possible physical damage to the wells, would have to be taken into consideration in future production, was announced by Commissioner Jerry Sadler. He estimated that the amount of oil involved was about 1,500,000 bbl., adding that he and Chairman Lon A. Smith had reasoned that since the wells could not close without injury during the state-wide shutin there was no reason why they could escape injury if severely cut back at this time. The new order merely permitted the wells exempt during the holiday to retain their production. Rescinding of the order had generally been anticipated since the crisis existing at the time of its issuance has passed.



HENRY HORNER, governor of the State of Illinois, is an advocate of oil conservation, and if a bill can be drafted that will meet with the approval of Illinois oil men generally he will call a special session of the legislature, making the conservation plan the subject of the call. "Illinois is the only big producing state without a regulatory program," the governor said at his Monday press conference, "and I favor such a program."

ILLINOIS

ILLINOIS NEEDS OIL CONSERVATION, according to Gov. Henry Horner, who also expressed the opinion that the oil industry would be a good source of new tax revenue to pay higher old-age pensions. At the governor's press conference at Springfield on Monday he advocated production control to conserve the state's oil resources, but he wanted oil men to reach some accord on a conservation plan before he puts the subject in a call for a special session of the legislature.

Governor Horner said he had not decided on the date for a special session or what subjects will be in the call. Of oil regulation he added:

"I want to get a good square bill or I'm not going to put it in the call. We need production control that will really be conservation. Some oil men say they favor conservation but not proration, and I'd like to know the difference."

CALIFORNIA

THE SPECIAL CALIFORNIA ELECTION on November 7 will occupy the center of interest between now and the final date as the various factions strive to outwit and outmaneuver their opponents in the aggressive battle for votes which will either void the Atkinson oil-control bill or give the State of California its first and only compulsory regulation of crude-oil and natural-gas production. Both sides went into action last week, with the "oil hog," sponsored by proponents of the regulatory bill far outnumbering the familiar "shark" that dominated the last fight against sponsors of the Sharkey oil-control bill a few years ago. At present the oil hog, wallowing in a pool of black oil, suggests a "Yes" vote on the Atkinson oil-control bill and the shark asks a "No" vote. The result of the election on November 7 may be different, but at present the billboards in both northern and southern California contain several times as many oil-hog posters as they do shark posters.

KANSAS

FEDERAL JUDGE RICHARD J. HOPKINS, at Topeka, Kans., issued a temporary restraining order on October 13 enjoining the state Corporation Commission from enforcing oil proration regulations on the Tulsa Oil Corp., Tulsa.

A three-judge court will convene probably next month, Judge Hopkins said, to hear the Tulsa corporation's suit to test validity of the Kansas oil proration statute.

A similar order has been granted the Bay Petroleum Corp. of Delaware. Petitions of both companies allege the proration law is "unconstitutional" and that the method of allocating production between pools is discriminatory.

Harold Medill, attorney for the Corporation Commission, protested the granting of the restraining order, claiming it would be difficult for the commission to issue and enforce future proration orders while enjoined from making them complete.

The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

Crystal Clear

The most remarkable thing about the T.N.E.C. investigation of the oil business is that 3 weeks of hearings have developed no proof of collusion or monopoly in prices that hurt the public.

Speak to the average citizen about monopoly and what he fears is a combination that gouges the consumer and oppresses labor.

Yet we have Dr. Isador Lubin, commissioner of statistics of the Department of Labor, and touted as a star witness for the T.N.E.C., declaring that:

"I want to congratulate the oil industry on its high standard of working conditions, its high labor standards, including high wages, low weekly hours of work and steady employment, outstanding among all industries."

It has been generally understood that the president instructed Chairman O'Mahoney to be particularly inquisitive and alert about the price situation.

We have had detailed evidence, supported by facts, not challenged by anyone at the hearings, that the industry has been consistently giving the public improved products at prices below the cost of all commodities.

What sort of monopoly is it whose beneficiaries are the working and consuming public, even to the detriment of the people engaged in the business?

Those who have heard the testimony before the T.N.E.C., and those who have read it, cannot fail to have been impressed by one thought, that the criticisms of the industry came from neither the consumers of its products nor from its workers.

The friction is wholly within the business itself, with no relation to either the public or labor who are not complaining and have no interest in industry quarrels.

There is the great bulk of the industry, in all its branches, conducting its operations on a permanent basis, endeavoring to assure the consumer an adequate supply of products for a reasonable price with a fair return on capital and a fair wage to labor.

There are those whose only interest in the business is what they can make out of it while they are in it, without thought of the stability of the industry to which they have attached themselves. They thrive on "distress prices" at the cost of the operating industry.

Constructive competition in the operating divisions has given the public better products at lower cost. Destructive competition in the marketing end has robbed the industry of justified returns for this greater efficiency, and has put it repeatedly to the expense of millions of dollars disproving charges made in the pretense of protecting the public but originating in a scramble for sales.

There may be reasonable criticisms between one operating branch and another, but these are susceptible of adjustment within the industry. The charges which made most noise before the committee were not of this character; they were concerned with marketing, not affecting either labor or the public, but purely those engaged in sales.

The industry has presented a crystal-clear case before the Government. It is not enough, however, for these government agencies to have heard the story of the industry and be convinced.

That story should be placed before the customers of the oil business. Agencies like the public relations committees of the I.P.A.A. and the A.P.I. who are seeking ways and means for promoting good will for the industry can find a mass of interesting and impressive material in the evidence brought to light at Washington.

This is exactly the information needed to interest and enlighten the public. The T.N.E.C. hearings have been a great opportunity to get the facts on record. The industry should see they are made known to all.

A. P. I. C. Holds Conference on Automotive Taxation

NEW YORK, Oct. 16.—Petroleum tax problems and directly related questions were subjected to microscopic examination here at the interstate conference on automotive taxation sponsored by the American Petroleum Industries Committee. Oil men, educators, economists, highway officials and executives of interested organizations examined the petroleum and automotive tax problem from a variety of angles. The conference served to focus attention on the burden shouldered by the petroleum and automobile industries because of the simultaneous showing in New York of the 1940 car and truck models.

Baird H. Markham, director of the American Petroleum Industries Committee, speaking of "The Road We Have Come and the Way That Lies Ahead," drew a comparison between the complete disorganization of forces, the utter lack of research data and almost equal ignorance in the technique of procedure prevailing in 1933 when the A.P.I.C. was founded and the modern facilities. In 1933 there were more than 6,000 bills introduced in 93 regular and special legislative sessions affecting the petroleum industry and its customers.

"Today," said Mr. Markham, "we can proceed in an orderly fashion. We are fortified with the results of 7 years of intensive research which has produced adequate educational and statistical material; an abundance of reference data has been compiled, and are now available; and a general educational program has been formulated and has been and is being, put into effect. We have the benefit of our individual and collective experiences, and the lessons which both our failures and successes have taught us. The objectives that lie before us clearly are defined. Today, 37 states and the District of Columbia are organized down to the last county. We have effectively functioning state committees in 46 states and the District of Columbia. Out of 3,066 counties in the nation, 2,403 are organized and have active local organizations."

Mr. Markham said that the war against unreasonable, unjustified and inequitable petroleum taxes is now entering a stage which he compared to fire-prevention work. He said that experiences of the past 7 years have indicated some of the ways to avoid even preliminary consideration of ill-advised legislative tax action just as fire prevention obviates the emergency action of subduing a blaze.

J. C. Hunter of Abilene, Tex., president of the Mid-Continent Oil and Gas Association, called for a united front in combating inequitable taxes on the oil industry.

"Certainly the time has come," said Mr. Hunter, "when the rapidly increasing public expenditures and mounting public debt must be curbed if we are to safeguard properly the country's business structure, as well as the Government itself. The tax bill collected from the petroleum industry and on its products in 1938 amounted to the stupendous sum of $1,286,000,000. In that same year, the net earnings on the $14,000,000,000 capital invested in the industry amounted to approximately $378,000,000. Thus the Government through the magic power of taxation exacted from the operations of the oil industry and the sale of its products a toll more than three times as great as that left to those who own it and use its products. Our best hope for relief lies in being armed with comprehensive and accurate tax information and then present it to law-makers, tax administrators and the public with eternal vigilance, considerate tact and untiring energy."

In discussing "Problems of Truck Transportation," Arthur C. Butler, manager of the motor-truck department of the Automobile Manufacturers Association, reviewed some of the attempted and pending legislation in Washington and the states for detrimental regulation.

The need for cooperative action in removing highway barriers, chiefly the port of entry and inspection regulations, was pointed out by Chester H. Gray, director of the National Highway Users Conference.

G. Donald Kennedy, deputy state highway commissioner of Michigan, told how a campaign was pushed to successful conclusion for the constitutional amendment prohibiting diversion of highway funds.

"The American Motorist and the Gasoline Tax," was discussed by Thomas J. Keefe, general manager, American Motorists Association; "The Alcohol Gasoline Scheme," by Conger Reynolds, public relations director of the Standard Oil Co. (Indiana); and "Gasoline Specifications," by O. P. Cottrell, Texas Co.

Supreme Court to Review Yates Field Land Case

AUSTIN, Tex.—A writ of error for review of the land suit styled Gulf v. Marathon, and two companion cases, involving title to 143 acres of land and nine wells in the Yates field of Pecos County, was granted by the Supreme Court last week. The principal question in all three suits is the location of a boundary between the Marathon Taylor lease in Section 33 and the Gulf M. A. Smith lease in Section 28. A lower court rendered a money judgment of a total of $744,906 against Gulf Oil Corp. The main writ was granted on Gulf's first assignment of error which read:

"The court erred in holding there is no evidence of a boundary agreement between the two companies, because the undisputed evidence shows that, the line between the two leases never having been worked out on the ground, and its location being doubtful and uncertain, the line approximately 200 ft. east of Gulf's No. 1 was established by agreement of the parties and has been used as the dividing line between the two leases."

The Gulf brief also raises proration question in this language:

"The Yates oil field is a common pool. Oil from the two leases was produced and prorated from October 1, 1927, to June 1, 1928, with reference to the line agreed to by the engineers. Since July 1, 1928, oil has been produced from the pool under the unit system, under orders of the Railroad Commission, with each section of the pool divided into six parts. After the Smith-Turner decision in 1933, Mid-Kansas and the royalty claimants under the Smith-Taylor leases elected to retain on the remaining acreage under their lease, its full quota of six units, to the line agreed upon in conference, which gives to that lease all the oil to which a section of land is entitled from the common pool. The holding of the Court of Civil Appeals in this case that the defendants in error are entitled to recover the oil produced from the wells in controversy is in conflict with the principles of substantive law announced by this (Supreme) court in Brown v. Humble."

Supreme Court Will Hear Madison Case Appeal

WASHINGTON, D. C., Oct. 16.—The Supreme Court agreed today to pass on antitrust litigation brought by the Government against midwestern oil companies.

The seventh federal Circuit Court had set aside the conviction of 12 companies and 5 of their officers or employes on a charge of conspiring to raise the price of gasoline sold in 10 midwestern states. A new trial was ordered. The defendants had been convicted in the federal District Court at Madison, Wis.

The Government told the Supreme Court that the Court of Appeals erred "in holding that the trial court should have instructed the jury that, even if it found that the defendants in combination had the purpose and power to raise and maintain prices, it might still find the restraint of trade reasonable and, therefore, lawful."

The Supreme Court agreed June 5 to pass on the action of Judge Patrick T. Stone, who presided at the Madison trial, in dismissing the indictment of 11 defendants after they had been convicted by the jury. New trials were granted 18 other defendants. Arguments on the government appeal will be heard in a few weeks.

Cole Committee to Begin Oil Tour Next Week

WASHINGTON, D. C., Oct. 16.—Rep. William P. Cole, chairman of the subcommittee in charge of the administration bill to extend federal control over production, said today the committee will go into the western Pennsylvania oil fields next week. Public hearings will probably start at Washington November 10, after which the committee will probably go into Illinois, Texas and Louisiana to hold local hearings.

The first Washington hearings consist largely of government representatives. After the field trips the committee will hold additional hearings here.

Cars Primarily for Business

More than 60 per cent of all passenger-car driving in the United States is for business purposes, the U. S. Public Roads Administration has learned through surveys conducted in 46 states.

THE MARKETS*

CRUDE OIL: No price changes. One less production holiday in Texas last week caused a production increase of 202,210 bbl. in average production in that state. California, Oklahoma, Kansas, and Louisiana contributed to a net production increase in the United States of 259,510 bbl. a day.

REFINERY: Faced with the likelihood of heavy demand for most of their products if the European war settles down to a prolonged struggle, but faced with threat of excessive stocks if it ends abruptly, refiners are in a quandary. In the meantime, lubricants and wax are extremely tight, naturals are firm, heating oils and heavy industrial fuels are accumulating strength. Gasoline is tending to softness, owing largely to delays in making export shipments.

TANK WAGON AND POSTED DEALER: Socony-Vacuum advanced dealer tank-wagon gasoline prices at four New England and New York marketing points. Standard of Kentucky reduced tank-wagon and dealer gasoline prices 1½ cents in Miami and made other local adjustments.

FINANCIAL: Oil shares moved within a narrow range, but in the direction of lower levels. Average of 30 representative stocks for week ending October 14: High, 29.34; low, 28.30; close, 28.89. Week ending October 7: High, 29.51; low, 27.95; close, 28.68.

*Detailed information in market section.

DEATHS

ARCHIBALD J. SCOTT, 61, managing director of Anaconda Oil Co., died at Calgary recently.

J. W. DAVIS, 42, president, Davis Gas Corp., died recently at Paola, Kans.

WILLIAM B. HAMILTON, 89, for many years a driller in Ontario fields, who also served in Borneo, died at Petrolia, Ont.

H. E. RODGERS, 39, independent operator of Amarillo, Tex., died recently in Amarillo. Born at Tulia, Tex., he was a graduate of New Mexico School of Mines at Socorro, N. M. From 1928 to 1933 he served as production engineer for the Panhandle division of Phillips Petroleum Co.

International

Colombia . .

Production Reaches An All-Time Record

CRUDE oil production from Colombia reached the all-time record high of 62,934 bbl. daily in August, according to the Ministry of National Economy at Bogota. The August production total of 1,950,966 bbl. is the highest figure reached since discovery of oil in Colombia and was an increase of 179,855 bbl. over the July output of 1,771,111 bbl.

The accumulated production from Colombia so far this year (from January through August) totals 14,308,275 bbl., an increase of 378,571 bbl. over the same period in 1938. The August production was also an increase of 98,499 bbl. over the output for the same month in 1938.

Italy . .

Crude Imports Jump; Refining Capacity Up

THE six important refining companies in Italy now have a combined capacity of approximately 47,300 bbl. per day, topped by the two plants of A.G.I.P. at Porto Marghera and Fiume which are qualified to run about 14,190 bbl. per day.

The Spezia refinery, operated by a subsidiary of the Royal Dutch-Shell group, is the next largest plant in Italy, with rated capacity of 12,210 bbl. per day. The two new refineries at Leghorn and Bari, built last year and operated by Azienda Nazionale Idrogenazione Combustibili, have a combined rated capacity of approximately 10,000 bbl. per day and "Aquila's" plant at Trieste is listed capable of processing about 6,000 bbl. daily. Socony-Vacuum's subsidiary in Italy has a 4,000-bbl. per day refinery at Naples and S.I.A.P., Standard of New Jersey subsidiary, has a 2,000-bbl. plant at Trieste. The Naples refinery is equipped with a catalytic-cracking unit and the Leghorn and Bari plants have hydrogenation plants for the purpose of obtaining the highest quantity and quality of products from Albanian crude.

Out of the combined capacity of 47,300 bbl. per day, nearly a third, or 14,000 bbl., was commissioned during the final months of 1938, causing rather wide swings in the petroleum economy of Italy. Italy has been considered as a possible inlet for petroleum transshipments to ermany as an emergency war measure, and for this reason a review of the first-half operations made available by the Department of Commerce presents some interesting figures.

The report shows that crude-oil imports by Italy during the first half of 1939 increased nearly 16 per cent over the same period in 1938. Increased receipts were registered from Albania to the extent of about 39 per cent, aggregating 437,890 bbl.; from Mexico, which supplied 1,045,236 bbl. and from Venezuela. Crude-oil receipts from the United States dropped more than 7 per cent for the first 6 months and this trend was more pronounced in the second quarter when the decline was more than 30 per cent below the same period last year.

Total crude-oil imports by Italy during the first half of 1939 aggregated 6,439,372 bbl., compared to 5,568,785 bbl. in the first 6 months of 1938, a gain of 15.63 per cent. Italy imported 87.75 per cent of its crude-oil requirements during the first half of this year, despite the substantial increase from Albania which is now considered national supply.

The domestic production of crude, exclusive of Albania, during the second quarter of 1939 totaled only 19,852 bbl., a decline of 7 per cent under the previous quarter's production of 21,369 bbl. and nearly 20 per cent under the 1938 second-quarter production of 24,712 bbl. The aggregate production for the first half of 1939 amounted to 41,220 bbl., a decline of 15 per cent under the corresponding 1938 volume of 48,497 bbl.

The production has been decreasing steadily from the 1938 high, reached during the second quarter, to the 1939 low level of the second quarter.

Sweden . .

Restricts Gasoline Sales And Use of Motor Vehicles

BY royal proclamation, dated September 1, and effective immediately, the Swedish Government has restricted the sale of gasoline and the use of motor vehicles.

This proclamation provides that after September 2 no person, without a special permit issued by the police authorities of the district in which he resides, and with the exception of professional traffic (buses and taxicabs) may operate any motor vehicle other than a truck, i.e., no private passenger cars, motorcycles, lightweight cycle motors, motor boats or private airplanes may be driven.

After midnight September 1, no gasoline for the operator of the vehicles so designated may be sold or transferred to other persons than those holding the special permits referred to. This regulation applies to so-called "lattbentyl" as well as to gasoline.

The permits mentioned may be issued only to owners who can prove that the use of their vehicles is necessary, for travel to and from work, or otherwise. Sales or transfers of gasoline to holders of these permits may be made only on presentation therof, and the maximum which may be sold or transferred at one time is represented by the capacity of the tank of the vehicle.

Egypt . .

Production in June Highest in Years

THE substantial contribution to Egyptian production of the Ras Gharib field, discovered in the middle of 1938, continued on evidence during June. Egyptian production totaled 434,222 bbl. in June, the highest figure recorded in many years. During the first half of this year Egypt produced 2,088,725 bbl. of crude, compared to 572,218 bbl. for the same time in 1938.

The June production figure of 434,222 bbl. compares with 375,865 bbl. in May and with 89,836 bbl. in June 1938.

Bolivia . .

General Election May Alter Oil Situation

OUTCOME of the general election scheduled in the near future in Bolivia may have important bearing on position of Standard Oil Co. of Bolivia, subsidiary of Standard of New Jersey, whose properties were seized in March 1937.

Provisional President Carlos Quintanilla, who became head of the Bolivian Government, when German Busch died recently, has given evidence of wanting a closer union with the United States. Censorship was suspended in the republic on September 22 and 5 days later Sumner Welles, undersecretary of state, cabled from Panama recommending a loan of $2,000,000 to Bolivia to be repaid from shipments of tin.

The barter arrangement with Germany by which the government was to build a refinery and a pipe-line outlet for Bolivian petroleum has been indefinitely terminated by the European war. Even in the discussion stage the Bolivian refinery and pipe-line plans were not seriously regarded due to the lack of established production and reserves.

There is a substantial faction in Bolivia desirous of reinstating the contract between the government and the Standard Oil Co. of Bolivia, holding that such action will accrue to the benefit of the country in the way of financial stability and technical equipment looking to the development of its oil potentialities.

War Echoes . .

Sidelights Affecting Oil in the Conflict

Addition of kerosene to motor fuel in Great Britain, a measure practiced by some distributors there to circumvent the restrictions imposed on civil automobile consumption, has been banned by a government order.

A Belgian mission consisting of four officers, a test pilot and an engineer is en route to the United States to purchase $6,000,000 worth of American airplanes and defense equipment which means greater demand for aviation gasoline and lubricants.

The 14,115-ton French tanker, Emile Miguet, found burning, apparently abandoned and the victim of a German sea raider, sailed from Corpus Christi September 17 with 160,000 bbl. of natural gasoline and crude oil. The French tanker was 2 years old and at the time of its call at Houston August 9 was the largest boat ever to pass through the ship channel. The boat was owned by Compania Navale des Petroles of Havre.

Petroleum exploration in Portugal is one of the efforts being made by Great Britain and its nationals to reduce the long haul from the Near-East fields, according to Henry J. Pierce, chairman of Anglo-Portuguese Oil Co., Ltd., who left New York for Lisbon last Friday aboard the Yankee Clipper.

T. N. E. C. Hears Witnesses on Variety of Subjects

THE antitrust charges involving railroad rates were particularly interesting to the T.N.E.C. They were based on a letter sent to several major oil companies by J. J. Pelley, president of the Association of American Railways, in January 1935.

Edwin S. Hall, counsel for Standard Oil Co. of New Jersey, and Harry T. Klein, general counsel and vice president of Texas Co., apparently satisfied the committee the companies rejected the proposal and it had never been consummated. The committee, however, still appears not satisfied that the majors may not have some influence over freight-rate adjustments. It was also unwilling to accept the inference that the Pelley letter was entirely the idea of the railroads, and inclined to the belief that officials of the Association of American Railroads must have had prior conversations with somebody in the oil business.

Divorcement of production, refining and transportation from marketing was urged as a means of shortcircuiting domination of retail outlets by majors in testimony by L. L. Scott, general manager, Loughborough Oil Co., Washington, D. C. Mr. Scott presented instances of practices which, he contended, makes it "strikingly evident" that "the antitrust and other laws are being circumvented in devious ways."

Complaint was registered by B. W. Ruark, general manager, Motor and Equipment Wholesalers Association, Chicago, that lease and agency station operators are not permitted to buy certain automobile accessory merchandise, replacement parts, garage and service-station equipment, and other general supplies, competitive to that offered by the major oil company whose brand or brands of accessories and motor oil they handle. The practice of major oil companies of supplying lifts, jacks, lubrication equipment, etc., to station operators was characterized as "on a basis believed to constitute unfair competition."

Federal legislation "to remedy the various evils which now exist in the industry" as well as "complete divorcement of all integrated units" from marketing was recommended by Henry A. Crouthamel, executive secretary, Maryland Association of Petroleum Retailers, Inc., Baltimore. "Excess building of filling stations," he contended, "could not have been brought about unless the majors had other sources of revenue to draw on beside the profits in the marketing division."

Ohio Dealer Airs Grievances

GEORGE B. INGRAHAM, president, New Deal Oil Co., Canton, Ohio, operating two retail outlets, a small jobbing and a brokerage business, submitted exhibits admitted "for what they are worth" by Congressman Williams, who presided. They included correspondence and price bulletins received from Pennzoil; postcards from the Stark County Gasoline Dealers Association suggesting retail prices; the witness' agency agreement; and a so-called "black list," several years old, listing "normal-price jobbers" and "cut-price jobbers" published by Ohio Petroleum Industry Committee.

The witness contended his contract for gasoline and lubricating oil was revised after the Madison trial to use tank-wagon prices instead of Standard Oil Co. of Ohio prices as the basis for the gasoline he purchases from Pennzoil. The revised basis, he asserted, reduced his margin.

Although he is a jobber for Pennzoil, the witness said, several of the price bulletins he received were headed "Standard Oil Co. of Ohio." Pennzoil, he said, advises him in advance of scheduled price changes by Standard Oil Co. of Ohio; he sought to infer that Pennzoil's price was dictated by Standard Oil Co. of Ohio.

Broad charges insinuating concert of action, consultation, and agreements to maintain gasoline prices among major companies were expressed by Mr. Ingraham, who also told of having the hose cut from his retail pumps, allegedly because of his failure to adhere to schedules followed by the Stark County Gasoline Dealers Association, most of the members of which, he estimated, were operators of "lease and agency" stations for major companies. Allegation was made that the association works with Standard Oil Co. of Ohio to regulate prices.

Instances where he was threatened with loss of his agency by Pennzoil for lending a supply of gasoline to a cut-price dealer; and the receipt of threats of reprisals from competitors growing out of price wars were related. He was told by other retailers, Ingraham said, "that it would be too bad for me" if he did not go along on an 18-cent price for gasoline at one time. Oral warnings by company representatives against the peril of being listed among "cut-price jobbers" and consequent inability to obtain future supplies of stocks were mentioned to the committee by this witness.

Committee interrogatories designed to develop concrete information from the grievances expressed invariably bogged down.

(Additional Testimony on Page 114)

RISING PRICES

(Continued from Page 31)

tively safe movement of petroleum cargoes will be established by Britain and France and that this not only will break up the gorge at the Gulf, but will start a steady stream of gasoline to that point for foreign shipment. Such an eventuality would restore to East Texas, North Louisiana, and Arkansas their former markets, at the same time relieving refiners in the Mid-Continent and Middle West of competitive conditions which have impaired their markets. It should bring the nation's top-heavy stocks to an economic level and probably afford a cure for troubles originating in cheap crude from Illinois. The effect on prices of such a train of developments is not difficult to foresee.

If the war should end suddenly a sharply different picture would face the United States refiner. Gasoline and other products sent to the Gulf for export would have to look to the East Coast for their disposal, overcrowding that avenue of distribution. The old marketing problems that had worried refiners in the Mid-Continent and the Middle West and in East Texas, North Louisiana and Arkansas would come back to plague them. Prices would drop.

These are considerations that create uncertainty in the marketing division of the oil industry.

Remarkable Improvement in Pennsylvania

OIL CITY, Pa., Oct. 16.—The most rapid improvement in the Pennsylvania Grade crude oil region in years culminated in the recent advance of 25 cents per barrel, the largest single advance since August 22, 1930. The increase mirrors to some degree the remarkable improvement which Pennsylvania refiners and producers have experienced in the past few weeks.

Bright stock and neutral prices have advanced 9½ cents per gallon since early August. This contrasts with their action during the previous 7 months when they moved up but 1½ cents. Increases in lubricating-oil prices in this short time amount to from 58 to 65 per cent.

Back of the advance in lube prices is the remarkable gain in shipments. Reports are not available for September but those of July and August show very pronounced gains over last year. The indicated shipments of bright stock in those 2 months, calculated from National Petroleum Association reports, were 20,491,086 gal., an increase of 25 per cent from the same months last year. Indicated shipments of neutral at the same time were 15,553,440 gal., also an increase of 25 per cent.

Both bright stock and neutral shipments are running well above last year. Bright stock shipments for the first 8 months are calculated at 69,000,472 gal. against 62,527,572 gal. last year, a gain of 6,472,900 gal. or 10 per cent. Neutral shipments this year are calculated at 54,793,857 gal. against 47,554,022 gal. in the like period of 1938, a gain of 7,239,835 gal. or 15 per cent.

Even though figures are not available for September, it is evident from the manner in which prices skyrocketed in that month that there was no lessening in demand then. However the fact that the improvement had its inception several months ago and so antedated the European war is evidence that the gains have not resulted entirely from demands of warring nations.

With demand for lubricating oils running heavy, demand for crude oil has quickened. Preliminary National Petroleum Association figures for the 4 weeks ended September 30 showed runs to stills of Pennsylvania Grade crude averaged 80,231 bbl. per day. During the same time production, according to the American Petroleum Institute, averaged 74,025 bbl. per day. From this it is concluded that withdrawals from storage in those 4 weeks averaged in excess of 6,000 bbl. per day.

The indicated heavy withdrawals in September followed near record withdrawals in August. The National Petroleum Association reported that 250,636 bbl. of Pennsylvania Grade were taken out of storage in August. This was the largest withdrawal for any single month in more than 5 years, and followed a reduction of 95,226 bbl. in July. However the reductions in both crude-oil and lubricating-oil inventories during August were accounted for in part by the cessation of Pennsylvania refining operations by a large eastern refinery.

Stocks of Pennsylvania Grade crude oil totaled 5,082,828 bbl. on August 31, according to the N.P.A., the lowest month-end total since February 1938. That total is still considerably in excess of the May 31, 1937, aggregate of 4,316,771 bbl., the lowest point at which stocks of Pennsylvania crude have stood in a decade. Crude-oil withdrawals for the year were 368,589 bbl. and would have been substantially greater had it not been that more than 200,000 bbl. was added during overproduction through the second quarter.

The October 6 advance of 25 cents in all Pennsylvania Grade fields, which followed crude withdrawals in July, August, and September, was the fourth advance of the year in Pennsylvania Grade crude prices. They were advanced previously on January 21, February 1, and March 6. Cumulative advances follow: Bradford, Allegany, and Oil City-Titusville, 57 cents; Southwest Pennsylvania, 56 cents; West Virginia, 58 cents, and southeastern Ohio, 62 cents. The effect has been to lift prices to the highest point since before December 1, 1937.

European War Oil Demand

(Continued from Page 23)

usual explosion hazard. Roof construction on large subsurface containers has not proved simple. Metallic tanks coated with concrete have been attempted but have not proved feasible because of difficulty in discovering exact location of cracks and repairs are nearly impossible to make.

All-concrete, underground reservoirs have been attempted but under heavy bombardment they are unsatisfactory due to large cracks developing. Therefore, though subsurface tanks are more easily camouflaged, the added expense, the difficulty of repairs, cracking due to earth vibrations during heavy bombardment make this form of storage impractical, generally speaking. However, subsurface storage tanks have been installed around most airdomes of all belligerent nations. These tanks are generally small and consist of a steel shell with a very heavy coating of reinforced concrete. There is no attempt being made to protect the roof from heavy bombs as it is considered impossible. Any bomb of 250 to 500 lb. would easily penetrate the roof on a direct hit. They will, however, withstand small incendiary bombs. England is also experimenting with large, concrete, hydraulically sealed underground tanks.

The experiences of bombardments of surface tanks in Spain and Poland indicated that the number of direct hits was relatively small and that the chief damage to surface storage came from concussion, bowling over, or shrapnel damage to large storage tanks when in the vicinity of the explosion of a large aerial bomb. To overcome this problem, the French Government has required all tanks of 3,000 tons or over to be surrounded by a reinforced concrete wall, 1 m. thick at the base, 15 cm. at the top, to a height of 80 per cent of the tank, where tanks are widely spaced. In addition to this concrete wall, an earth retaining wall must also be constructed. Because of the peculiarities of French construction in placing tanks close together (due to high land values adjacent to the large cities where refineries are built), often a single wall is constructed surrounding the entire tank farm. This is called "group protection." The expense of this type of protection is obvious and runs as high as 75 per cent of the original cost of storage.

In addition to the above-noted types of storage, many nations are considering storage in deep quarries or mines. In the case of France, where many such quarries exist, they are generally very large, well drained and provide ideal bomb-proof shelters. Some thought is being given to construction of large steel tanks to be submerged either at sea or in the deeper lakes. During the latter part of 1938, Switzerland conducted a series of experiments of submerging steel tanks in her lakes. Gasoline tanks of 12,000 gal. were submerged to a depth of 100 ft. and found to be invisible from airplanes at an altitude of 3,000 ft. or more. Balloon-type canvas tanks are also being considered for submergence. Areas of concentrated submerged storage could be protected by submarine nets and heavy patrols. Depth bombs would not have a serious effect on such storage unless exploded very close to the tank or balloon.

Efforts have been made to camouflage tank farms and refineries but so far nothing very effective has been developed. This is due to the pecularity of the geometrical design of the tank, which on a sunny day casts a crescent-shaped shadow which can be seen at great heights. Breaking this shape by tents and sheds is now being attempted. However, it is considered that daytime camouflage cannot be made very effective. All large tanks are painted the color most suitable for the local terrain after aerial studies. Aluminum paint is prohibited because of its high reflecting qualities, not only during bright sunlight but even with weak moonlight or starlight, at obtuse angles.

Because of the tremendous problem of transportation during wartime, all nations are concerned with the general distribution of storage tanks. Whether to diffuse storage widely through the country or concentrate it at strategic points nearer the front is a controversy not yet settled. Diffused storage increases the transportation problem materially, although the possibilities of large-scale destruction through aerial bombardments are reduced. Concentrated storage reduces the transportation problem but materially increases the need for protection to prevent large-scale destruction. The experts are favoring the latter plan with concentration in large depots near the front so that night truck transportation can be used. (They feel that defensive measures can be made effective.) This is especially true of working storage of refined products. Virtual aerial fortresses are contemplated, using camouflage, shadow factories, smoke screens, aerial barrages, chase squadrons and every other possible means for protection of these areas of concentrated fuels near the front.

Now, the important problem: Where will Europe get her supplies of petroleum products in this period of abnormal demand? Where do the great powers get their supplies during peacetime and by what routes?

During 1938 (a year without war), Europe imported 35,500,000 tons of oil. The four great powers took 76.3 per cent or 27,527,000 tons. These imports came from the following nations:

TABLE 8

Country—	Tons	Per cent
United States	7,053,428	25.7
Dutch West Indies	6,482,622	23.6
Iraq	3,902,055	14.3
Iran	2,747,326	10.5
Rumania	1,534,241	5.6
Venezuela	1,492,231	5.4
British West Indies	762,832	2.8
Mexico	713,152	2.6
Peru	553,787	2.0
Colombia	537,571	1.9
U.S.S.R.	491,672	1.7
Dutch East Indies	328,568	1.2
Albania	65,313	0.2
Ecuador	47,600	0.1
Esthonia	31,509	0.1
Poland	25,954	0.1
Other countries	757,449	2.7
Total	27,527,221	100.0

It is interesting to note that North, South and Central America supplied 64.1 per cent of European requirements, whereas the Orient and North Africa together with European shipments through the Mediterranean supplied 33.5 per cent. The following table is of special interest in this connection:

TABLE 9

Origin of petroleum products—	Tonnage	Per cent
South and Central America	10,589,795	38.4
Orient and Mediterranean	9,069,175	33.5
North America (United States)	7,053,428	25.7
Other countries	814,822	2.4
Total	27,527,221	100.0

Venezuela plays a more important part than is indicated in Table 8. Actually 29 per cent of Europe's imports comes from her fields; 5.4 per cent in direct shipments, the remainder being transhipped through the Dutch West Indies. Forty-five per cent of Germany's imports are from Venezuela; 21 per cent goes to Great Britain and a lesser percentage to France and Italy. The United States supplies 37.2 per cent of Italy's imports; 34.6 per cent of France's imports and 23.7 per cent of Germany's imports. Table 10 is a complete breakdown of the source of imports of the four great powers.

It can be seen that in peacetime 55.5 per cent of Germany's imports come from South and Central America; 23.7 per cent from the United States and the balance through the Mediterranean and Rumania. Thus, approximately 80 per cent of Germany's imports must come by way of the Atlantic Ocean and 10 per cent through the Mediterranean, a total of 90 per cent from sources now cut off. As the sea lanes are practically blocked, her imports have ceased, with the possible exception of 9 per cent from Rumania. On the other hand, France is dependent upon the Mediterranean routes for 44 per cent of her imports and should this route be blocked, while it would dislocate her industry temporarily, she could still obtain oil by way of the Atlantic. Great Britain is faced with the same problem as France only to a lesser extent. Italy is dependent directly on Atlantic sea traffic to the extent of 58 per cent, the balance coming through the Mediterranean without being on the Atlantic at any time. Unquestionably, Germany is in a very poor position to maintain her imports so long as her opponents control the seas.

The entire problem of the routing of imports to Europe during wartime depends upon freedom in the Mediterranean and freedom of ocean traffic. If the Mediterranean remained open (Italy and Spain either neutral or on the side of England and France) Rumania's oil could continue to flow into its regular channels and the oil of

TABLE 10—PETROLEUM IMPORTS

Origin—	Great Britain Tons	Great Britain Per cent	France Tons	France Per cent	Germany Tons	Germany Per cent	Italy Tons	Italy Per cent
Venezuela and Dutch West Indies	4,454,559	38.1	857,821	10.6	2,232,784	44.4	429,689	16.1
United States	2,061,223	17.6	2,818,232	34.6	1,193,143	23.7	980,830	37.2
Iraq	520,529	4.4	3,144,078	38.6	.....	...	237,448	8.9
Iran	2,298,027	19.6	119,904	1.4	188,123	3.7	141,272	5.3
Rumania	342,010	2.9	223,300	2.8	450,555	8.9	518,376	19.5
British West Indies	762,832	6.5	.....	...	.....	...	.....	...
Mexico	238,270	2.0	23,425	0.2	434,410	8.6	17,048	0.7
Peru	79,912	0.7	343,787	4.3	130,088	2.5	.....	...
Colombia	.....	...	420,066	5.2	.....	...	117,505	4.4
U.S.S.R.	292,889	2.5	113,390	1.4	81,113	1.6	4,180	0.1
Dutch East Indies	87,244	0.7	20,217	0.2	159,396	3.1	61,711	2.3
Albania	.....	...	.....	...	.....	...	65,313	2.4
Ecuador	.....	...	47,000	0.5	.....	...	.....	...
Esthonia	.....	...	.....	...	31,509	0.6	.....	...
Poland	.....	...	582	...	19,496	0.3	5,876	0.1
Others	549,005	4.6	9,957	...	98,456	1.9	76,810	2.9
Total	11,686,500	...	8,165,578	...	5,019,073	...	2,616,058	...

Imports by Districts

Origin—	Great Britain Tons	Great Britain Per cent	France Tons	France Per cent	Germany Tons	Germany Per cent	Italy Tons	Italy Per cent
South, Central America	5,535,573	47.3	1,692,693	20.8	2,797,282	55.5	554,242	21.2
Orient and Mediterranean	3,540,399	30.1	3,620,889	44.4	879,187	17.3	1,028,300	38.5
North America	2,061,223	17.6	2,818,232	34.6	1,193,143	23.7	980,830	37.2

Iran, Iraq and the Americas could continue as at present, being increased, however, to meet the wartime needs. If the Mediterranean was closed to traffic, Rumanian oil would undoubtedly go to Germany, and the oil of Iran and Iraq would be faced with a dangerous and costly 11,000-mile water haul to reach Europe. In such an event, it is more likely that this oil would be confined to the oriental and near-eastern markets, while that of the Americas would substitute in Europe for the duration of the war.

Two possibilities must be considered:

1. Should the Mediterranean remain open. Britain and France, being able to obtain their African and Oriental oil, would require approximately 37,000,000 tons in addition to the 19,851,000 tons which they imported in 1938, in order to meet their wartime requirements of 57,000,000 tons per year. This assumes that no large-scale, active warfare will occur in their colonial possessions. Should such warfare take place, their requirements of petroleum products would rapidly increase.

2. Should the Mediterranean be closed to African and Oriental shipments, Britain and France would require solely from the Americas 45,000,000 tons in addition to the 12,000,000 tons that they imported from this area during 1938, in order to meet their wartime requirements of 57,000,000 tons per year.

Is it possible to supply this additional quantity from the fields of North, South and Central America? From the United States, Venezuela, Colombia, Peru, Trinidad and Mexico? Would it be necessary to ship oil around Africa, even though it is dangerous and expensive, to supplement the Americas?

35 Million Tons Exported

The 1938 production from these American countries was approximately 215,000,000 tons, of which approximately 35,000,000 tons were exported. Of this sum, 4,000,000 tons went to Germany. This will seek an outlet—now easily available to France and England. Therefore, in the first instance noted above, there would remain a deficiency of 33,000,000 tons and in the second, 41,000,000 tons. This represents an approximate increase in the present production of 15.3 per cent and 19 per cent respectively. There can be no question that, considering the shut-in and prorated production in the Americas, the production increases indicated by these percentage figures could be met without undue strain. The larger figure of 41,000,000 tons per year indicates an increased daily demand of 786,000 bbl., whereas the smaller figure, 630,000 bbl. In what production could the different North and South American countries meet this increased demand?

Venezuela, Colombia, Peru and Trinidad are considered capable of increasing their production by approximately 170,000 bbl. daily in a very short period. Mexico is more uncertain, though the increased demand for petroleum will undoubtedly affect the relations of Great Britain and the United States toward Mexico in this respect. If this problem can be satisfactorily settled, Mexico could conceivably raise her production by 20,000 bbl. per day. Thus, the United States could anticipate an increased daily demand of between 440,000 bbl. (62,850 tons) and 596,000 bbl. (85,140 tons). In addition to this demand that will be made on the United States, the increased domestic consumption must be kept in mind. To what extent domestic consumption will increase is difficult to predict at the present writing. It should be great, however. Some idea of the possible increase during a war period can be gained from the following figures: Consumption, 1914, 20,800,000 tons; 1918, 34,760,000 tons, an increase of 67 per cent, the greater part of which occurred prior to our entry into the war.

In spite of a possible large-scale increase in domestic consumption, there can be little doubt that the nations of North, Central and South America will be able to meet the petroleum requirements of the present war. It is interesting to note at this point what the situation would be if the United States refrained from selling petroleum to the belligerents, either directly or indirectly. This is a most unlikely situation, but as the question will be raised, it will be discussed briefly.

The imports to Great Britain and France in 1938, aside from those from the United States, were 14,972,623 tons. The annual peacetime requirements of the British Empire (Canada, India, Australia, New Zealand, South Africa and remaining colonies) aside from Great Britain proper were, for 1938, 16,000,000 tons. If this is added to the estimated annual French and British wartime requirements (57,000,000 tons), a figure of 73,000,000 tons is found to be the annual requirements of these nations, assuming war does not spread to the colonies.

1938 Imports to Europe

The 1938 (non-European) world imports to Europe, exclusive of United States origin, were 18,500,000 tons, all of which Great Britain and France might get either through present control or purchase. In addition, they could obtain from oriental sources an additional 18,300,000 tons by the same method, making a total of 36,800,000 tons. Under wartime stress (assuming that the United States does not sell to belligerents directly or indirectly), an additional 10,000,000 tons might be anticipated from increased activities in present producing nations, other than the United States. Thus, in an extreme emergency, Great Britain and France could obtain approximately 46,800,000 tons per year. Deducting their colonial requirements of 16,000,000 tons, a net of 30,800,000 tons per year could be used for prosecuting the war. The best that Germany could anticipate would be 8,324,000 tons and this only if she obtains all of Rumania's exports. It can thus be seen that in extreme circumstances, it is still possible for Great Britain and France to marshal a 3.6:1 ratio of petroleum products over Germany, although this could be done only at extreme cost and great hardship. Such a procedure would alter the entire course of the war, chiefly through extending its duration. It would also change the use of mechanized forces both quantitatively and qualitatively, and would deprive the nonbelligerent world of all oil from the Orient and North Africa. The markets formerly supplied by these outlets could be cared for by the United States.

Up to this point, no consideration has been given to the refining problem associated with the war. Most military authorities feel that after a brief period of intensive warfare, every German, British and French refinery would be either completely destroyed or made inoperative. This seems likely if consideration is given to the difficulty of protection against air raids and the inflammable character of the product handled. Immediately, it becomes apparent that the problem of petroleum thus resolves itself into one of supplying the proper refined products, mainly aviation gasoline and fuel. In the event of the destruction of the belligerent refineries, Germany would be placed in a precarious position at once. Her crude and synthetic production advantage would immediately disappear as she is in no position to send her crude to neutral refineries for treatment or to import the vital refined products from abroad. This is not the situation with Great Britain and France who possess large refineries outside of Europe and who could easily transport refined products to Europe. Table 11 shows the daily refining capacity of each nation of the world in tons, taken from the Petroleum Register:

TABLE 11

South America

Country—	Tonnage
Argentina	13,000
Bolivia	57
Brazil	*370
Chile	70
Colombia	1,000
Cuba	710
Ecuador	120
Peru	2,300
Trinidad	4,700
Uruguay	840
Venezuela	8,000
Dutch West Indies	69,300

*Plus Standard of Brazil refinery, capacity unknown to author.

North America

United States	636,600
Canada	26,700
Mexico	20,000

Europe

Belgium	1,760
Bulgaria	160
Esthonia	210
France	16,000
Germany	18,500
Hungary	1,070
Italy	9,750
Latvia	20
Netherlands	810
Norway	310
Poland	3,300
Rumania	40,340
Spain	800
Sweden	1,170
United Kingdom (including Eire)	19,700
U.S.S.R.	87,300
Yugoslavia	1,500

Africa, Asia and Australia

Australia	570
Bahrein Island	3,570
Burmah	4,470
Egypt	1,070
India	1,310
Iran	40,700
Iraq	1,020
Japan	4,570
Netherland Indies	17,800
Siam	70
Union of South Africa	140

A close examination of production and refinery figures indicates that oil could move to the belligerents from four general areas.

The first of these includes Rumania, the Soviet Union and Iraq—whose outlet is in the Mediterranean—necessitating transportation by way of the Mediterranean Sea. Inasmuch as the Soviet Union's refining capacity is required for her own needs, and Rumanian exports are contingent upon an open sea lane (improbable), and Iraq's refining capacity is negligible, this group may be discounted as a major source of refined products. It is possible that Rumania's exports may flow to Germany. This has been covered previously.

The second large group includes Iran, Bahrein, Burmah and the Netherland East Indies. The total daily refining capacity is 66,540 tons—more than 20,000,000 tons annually—sufficient to care for the local production and easy to expand with expanding production. The chief difficulty lies in the cost and hazard of transportation of these products around Africa, a distance of 11,000 miles. The distance would necessitate a large increase in tanker tonnage required because only three round trips per year could be made as compared with six trans-Atlantic trips.

The third large group consists of the South American countries of Trinidad, Venezuela and the Netherland West Indies. Argentina is not included as she is no exporter of crude. Her entire production and refining capacity is used for internal requirements.) The daily refining capacity is 82,000 tons, more than 25,000,000 tons per year. While this is not sufficient to treat the present production from these countries, together with the contemplated increases, this refining capacity could be expanded rapidly, if necessary.

(Continued on Page 105)

August Gasoline Demand Higher Than Expected

THE production of crude oil declined materially in August as the result of the 15-day shutdown, and the daily average was only 2,608,600 bbl., or 970,000 bbl. below the average in July. The shutdown in Texas, Oklahoma, Louisiana, Kansas, New Mexico, and Arkansas was the outstanding event. The shutdown varied in length and intensity in the fields of the six states: the largest relative declines were in Oklahoma and New Mexico; the largest quantitative decrease in Texas. Michigan was reported as cooperating in the shutdown, but the daily average output (67,900 bbl.) established a new record. The shutdown may have accelerated production in Illinois; in any event, the output reached a new peak of 317,800 bbl., or 36,000 bbl. above the average in July.

The shutdown was presumed to reduce crude runs to stills, but actually the daily average rose to 3,472,000 bbl., or 24,000 bbl. higher than in July. The decline in production and the gain in runs to stills resulted in an outstanding withdrawal from crude-oil stocks, these being reduced about 32,000,000 bbl. to 238,479,000 bbl. on hand August 31.

Refined products: The yield of gasoline rose to 45.1 per cent, a gain of 0.6 per cent over July. The yield of gas oil and distillate fuel oil apparently began its seasonal rise, being 12.3 per cent for August compared with 11.9 per cent in July.

The demand for motor fuel in August bore out the most optimistic predictions, both domestic demand and exports being higher than generally anticipated. The domestic demand was 53,728,000 bbl., the highest monthly total ever recorded, and an increase of 6 per cent over August 1938. Exports of motor fuel were 4,308,000 bbl., much higher than in July, but about a half million barrels less than a year ago.

The total demand for light and heavy fuel oil in August 1939 was about 10 per cent ahead of last year, the pickup in the residual-fuel demand in July being sufficient to cause a draft on refinery stocks, the first since March.

According to the Bureau of Labor Statistics, the price index for petroleum products in August 1939 was 51.7, compared with 52.2 in July and 56.7 in August 1938.

The crude-oil capacity represented by the data in this report was 4,121,000 bbl., hence the operating ratio was 84 per cent, compared with 84 per cent in July and 80 per cent in August 1938.

United States Supply and Demand—Crude Oil (Bbl.)

August 1939

8 MONTHS—	TOTAL SUPPLY	TOTAL DEMAND	EXCESS DEMAND	EXCESS PCT.	DOMESTIC PRODUCTION	IMPORTS	INDICATED DOMESTIC DEMAND‡	EXPORTS	STOCKS REFINABLE CRUDE AUG. 31
1939	836,645,000	873,940,000	37,295,000	4.2	815,193,000	21,452,000	825,718,000	48,222,000	‖238,479,000
Daily average	3,443,000	3,596,000	.....	....	3,355,000	88,000	3,398,000	198,000	.....
1938	794,983,000	845,216,000	50,233,000	5.9	811,909,000	16,926,000	790,786,000	54,430,000	285,640,000
Daily average	3,271,000	3,478,000	.....	....	3,341,000	69,000	3,254,000	224,000	.....
Increase, 1939	41,662,000	28,724,000	.....	....	3,284,000	4,526,000	34,932,000	†6,208,000	†47,161,000
	5.2%	3.4%	.....	....	0.4%	27.0%	4.4%	†11.4%	†16.4%

Supply and Demand—Refinery Products Motor Fuel (Bbl.)

8 MONTHS—	TOTAL SUPPLY	TOTAL DEMAND	EXCESS DEMAND	EXCESS PCT.	DOMESTIC PRODUCTION	IMPORTS	DOMESTIC DEMAND‡	EXPORTS	STOCKS AUG. 31§
1939	396,035,000	393,742,000	*2,293,000	*0.6	396,035,000	.....	362,454,000	31,288,000	78,959,000
Daily average	1,630,000	1,620,000	..	....	1,630,000	.....	1,491,000	129,000	.....
1938	373,681,000	375,710,000	2,029,000	0.6	373,681,000	.....	342,687,000	33,023,000	78,984,000
Daily average	1,538,000	1,540,000	.....	....	1,538,000	.....	1,410,000	126,000	.....
Increase, 1939	22,354,000	18,032,000	.....	....	22,354,000	.....	19,767,000	†1,735,000	†25,000
	6.0%	4.8%	.....	....	6.0%	.....	5.7%	†5.3%	.....
Kerosene									
1939	45,110,000	43,548,000	*1,562,000	*3.6	45,110,000	.....	38,208,000	5,340,000	9,361,000
1938	42,754,000	39,688,000	*3,066,000	*7.1	42,754,000	.....	34,798,000	4,890,000	10,149,000
Increase, 1939	2,356,000	3,860,000	.....	..	2,356,000	.....	3,410,000	450,000	†788,000
	5.5%	9.7%	.....	....	5.5%	.....	9.8%	9.1%	†7.8%
Gas Oil and Residual Fuel Oil									
1939	317,496,000	322,854,000	5,358,000	1.6	305,456,000	12,040,000	288,584,000	34,270,000	138,687,000
1938	307,472,000	289,831,000	*17,641,000	*6.8	293,377,000	14,095,000	257,214,000	32,617,000	129,272,000
Increase, 1939	10,024,000	33,023,000	.....	....	12,079,000	†2,055,000	31,370,000	1,653,000	9,415,000
	3.2%	11.4%	.....	....	4.1%	†14.6%	12.2%	5.1%	7.3%
Gas Oil and Distillate Fuels									
1939	105,659,000	104,722,000	*937,000	*0.9	105,488,000	171,000	82,586,000	22,136,000	37,326,000
1938	98,214,000	92,299,000	*5,915,000	*6.4	98,214,000	.....	71,080,000	21,219,000	28,841,000
Increase, 1939	7,445,000	12,423,000	.....	....	7,274,000	.....	11,506,000	917,000	8,485,000
	7.6%	13.4%	.....	....	7.4%	.....	16.2%	4.3%	29.4%
Residual Fuel Oils									
1939	211,837,000	218,132,000	6,295,000	2.9	199,968,000	11,869,000	205,998,000	12,134,000	101,361,000
1938	209,258,000	197,532,000	*11,726,000	*5.9	195,163,000	14,095,000	186,134,000	11,398,000	100,431,000
Increase, 1939	2,579,000	20,600,000	.....	....	4,805,000	†2,226,000	19,864,000	736,000	930,000
	1.2%	10.4%	.....	.....	2.5%	†15.8%	10.7%	6.5%	0.9%
Lubricating Oils									
1939	21,852,000	22,482,000	630,000	2.8	21,852,000	.....	14,998,000	7,484,000	7,069,000
1938	20,660,000	20,207,000	*453,000	*2.2	20,660,000	.....	13,750,000	6,457,000	7,969,000
Increase, 1939	1,192,000	2,275,000	.....	...	1,192,000	.....	1,248,000	1,027,000	†900,000
	5.7%	11.2%	.....	...	5.7%	.....	9.1%	15.9%	†11.2%
Petroleum Wax (Lb.)									
1939	303,541,000	324,708,000	21,167,000	6.5	282,240,000	21,301,000	168,422,000	156,286,000	108,173,000
1938	307,774,000	318,663,000	10,889,000	3.5	283,360,000	24,414,000	201,666,000	116,997,000	134,103,000
Increase, 1939	†4,233,000	6,045,000	.....	..	†1,120,000	†3,113,000	†32,344,000	39,289,000	†25,930,000
	†1.3%	1.9%	.....	....	†0.4%	†12.7%	†16.0%	33.6%	†19.3%

*Excess supply. †Decrease. ‡Crude oil only. §Includes finished and unfinished refinery gasoline and natural gasolines. ¶Gas oil and fuel oil equals gas oil and distillate fuels plus residual fuel oils. Note: Total supply equals domestic production plus imports. Total demand equals domestic demand plus exports. Data on demand for refined products are based on refinery shipments. ‖Does not include 14,253,000 bbl. of heavy oils in California. Comparable figure for August 31, 1938, 17,575,000 bbl.

Crude Oil Run to Stills and Total All Oils (Bbl.)

AUGUST—	TOTAL IMPORTS§	TOTAL EXPORTS§	TOTAL CRUDE TO STILLS	PER CENT YIELD GASOLINE‡	NATURAL GASOLINE PRODUCTION	TOTAL SUPPLY ALL OILS*	TOTAL DEMAND ALL OILS*	STOCKS ALL O'LS AUGUST 31*
1939	39,690,000	84,856,000	810,604,000	44.7	32,425,000	888,722,000	921,098,000	522,094,000
Daily average	163,000	349,000	3,336,000	....	133,000	3,657,000	3,791,000	.....
1938	35,068,000	132,490,000	771,965,000	43.9	33,272,000	881,268,000	865,995,000	579,259,000
Daily average	144,000	545,000	3,176,000	....	137,000	3,627,000	3,564,000	.....
Increase, 1939	4,622,000	†47,634,000	38,639,000	..	†847,000	7,454,000	55,103,000	†57,165,000
	13.2%	†35.9%	2.6%	....	†0.2%	0.8%	6.3%	†9.8%

*Total all oils includes crude and refined products, natural gasoline and benzol. Stocks August 31, 1939, represented 138 days' supply which compared to 163 days on the same date in 1938. †Decrease. ‡Does not include natural gasoline blended at refineries. §Includes crude oil and refinery products. In case of imports includes receipts in bond and for domestic use. All data based on Bureau of Mines reports.

Natural Gasoline

Arkansas Louisiana Gas Co. Builds in North Louisiana

The Arkansas Louisiana Gas Co. is beginning work on a 40,000,000-cu. ft. high-pressure absorption plant in the Bisteneau field of Bienville Parish, North Louisiana. The company has recently completed several wet gassers in the Pettit-lime field, and a 14-in. gas line is being run from the area to the company's trunk line system for outlet of gas.

$100,000 Plant to Be Built in Dill Pool

OKEMAH, Okla.—Construction of a $100,000 gasoline plant in the Dill pool west of Okemah is being planned and some of the materials needed for the plant have been purchased, according to a statement by W. H. Dill, after whom the pool was named.

The plant will be constructed by the Balco Gasoline Corp.

Natural Gasoline Production Decreased in United States

The daily average production of natural gasoline decreased materially in August 1939, according to a report prepared by the Bureau of Mines. The daily average in August was 4,606,000 gal., compared with 5,656,000 gal. in July. This decline was due to the 15-day shutdown in the Mid-Continent field. On the other hand, production in California, and other areas outside the Mid-Continent, increased.

Stocks decreased from 299,166,000 gal. on hand July 31 to 278,208,000 gal. on hand August 31. This was 58,716,000 gal. less than a year ago.

Shipments to jobbers and retailers decreased from 10,122,000 gal. in July to 8,694,000 gal. in August and exports from 18,480,000 gal. to 15,246,000 gal. The average vapor pressure of all shipments decreased, and the weighted average for all movements in August was 19.2 lb. compared with 19.4 lb. in July and 18.8 lb. in August 1938.

Engineers Conduct Tests In Gas-Distillate Field

McALLEN, Tex.—Engineers are compiling data gathered from production tests on the well in the Weslaco gas-distillate field, 18 miles southeast of McAllen, to determine whether more wells will be drilled and whether a recycling plant will be built. Ed Galt, of Ardmore, Okla., heads the corporation making the tests on the well drilled several months ago by Atlantic Refining Co.

Construction Starting for New Agua Dulce Plant

Construction will be started at once on a recycling plant in the Agua Dulce-Stratton fields of Nueces County, in Southwest Texas. This unit is part of a large development program resulting from a recent 6,000-acre sale in these fields from John L. Sullivan and associates (Texon) to Corpus Christi Corp.

The syndicate which purchased the properties is headed by John Sherrin of San Antonio, Robert T. Wilson of Amarillo, and Clyde Alexander of Dallas, with definite plans to be announced at an early date to extent of development planned for the district.

On the block involved are all of the properties held by the Texon Royalty Co. and others between the Agua Dulce and Stratton fields with the majority of the acreage proved for distillate production in several horizons. Recycling plant of around 50,000,000-cu. ft. capacity will probably be erected on the land to handle the fluid from 10 or more wells which are to be drilled in the near future. Contract has been let to John F. Camp Drilling Co. of San Antonio for these wells which will go to 6,400 and 6,900-ft. sands. Looping of a 26-mile pipe line and construction of a large reforming plant on the ship channel and terminal to hold 10,000 bbl. are being considered. Pipe-line facilities may also be extended to connect with Union Producing Co. and Coastal Recycling Co. wells in the Agua Dulce field.

New Orleans Gasoline Tax Has Been Repealed

NEW ORLEANS, La.—Repeal of the city's 2-cent tax on gasoline sales became effective October 1, reducing the total tax now paid from 10 cents to 8 cents, representing only state, parish and federal levies. With the reduction the dealer tank-wagon price has been reduced accordingly from 19.75 cents to 17.75 cents.

PRODUCTION AND STOCKS OF NATURAL GASOLINE

(Thousands of gallons)

	August 1939	July 1939	Jan.-Aug. 1939	Jan.-Aug. 1938	At refineries
East Coast	.....	.....	.....	.....	7,938
Appalachian	4,019	3,692	43,676	43,904	924
Illinois, Michigan, Kentucky	1,103	1,060	9,095	8,199	5,334
Oklahoma	25,281	37,349	288,227	314,016	3,990
Oklahoma City	5,775	8,517	68,859	97,806	.....
Osage County	2,974	4,546	33,180	36,026	.....
Seminole	7,032	10,838	80,443	81,864	.....
Rest of state	9,500	13,448	105,745	98,320	.....
Kansas	3,890	4,078	37,347	35,884	.....
Texas	43,751	61,615	442,987	452,390	3,234
Gulf	5,416	7,594	47,785	40,772	2,310
East Texas	9,422	18,390	122,124	128,188	.....
Panhandle	16,870	18,990	151,792	163,641	.....
North Texas	2,013	2,248	17,505	17,594	.....
West Central	4,655	5,254	42,853	48,402	.....
Rest of state	5,375	9,139	60,928	53,793	.....
Louisiana	7,133	7,764	57,084	62,977	168
Arkansas	1,967	2,149	16,984	16,186	378
Rocky Mountain	5,363	7,930	57,599	52,710	4,746
California	50,293	49,713	408,851	439,970	88,200
Huntington Beach	2,828	2,792	23,237	28,698	.....
Kettleman Hills	12,581	12,563	110,831	122,746	.....
Long Beach	7,315	7,240	57,512	61,324	.....
Santa Fe Springs	4,873	4,869	39,138	42,818	.....
Ventura Avenue	5,141	5,107	40,302	39,644	.....
Rest of state	17,555	17,142	137,831	144,740	.....
Total	142,800	175,350	1,361,850	1,426,236	114,912
Daily average	4,606	5,656	6,604	5,869	.....
Total (thousands of barrels)	3,400	4,175	32,425	33,958	2,736
Daily average	110	135	133	140	.....

RECEIPTS AND DELIVERIES OF NATURAL GASOLINE

(Thousands of gallons)

	Deliveries					Receipts	
	To refineries	To refinery-owned bulk plants	To jobbers and retailers	Exports	At refineries	At refinery-owned bulk plants	By jobbers and retailers
East Coast	.....	.....	.....	.....	300	8	52
Appalachian	2,480	301	2,619	131	2,370	301	1,461
Ind., Ill., Ky., etc.	875	.....	288	.....	16,523	690	1,987
Oklahoma	29,352	430	1,234	411	20,615	59	973
Kans., Mo., etc.	2,402	113	206	.....	9,171	288	113
Texas Inland	29,715	752	2,006	112	26,596	204	2,368
Texas Gulf	9,909	.....	379	13,206			
La. and Ark.	4,947	336	1,617	.....	4,566	336	1,377
Rocky Mountain	5,159	.....	39	.....	4,698	46	35
California	48,217	.....	306	1,386	48,217	.....	306
Total	133,056	1,932	8,694	15,346	133,056	1,932	8,694
Daily average	4,292	62	280	492	4,292	62	280
Ttl. (thou. of bbl)	3,168	46	207	363	3,168	46	207
Average v.p.	20.2	9.3	11.7	15.9	20.2	9.3	11.7

Refinery News

Gulf Coast Refineries Resume Normal Operations

HOUSTON, Tex.—Member companies comprising the Gulf Coast Refiners Association are gradually achieving normal refinery operating conditions following the recent crude-oil production shutdown period. Crude runs for the week ending October 7 are reported at 691,923 bbl., which is at the rate of 78½ per cent of total rated capacity of 882,000 bbl. per week. Crude runs for the previous week were 649,842 bbl.

New Mexico Refinery Under Construction

A new 1,000-bbl.-per-day refinery is being built adjacent to the Santa Fe station of Baca, in McKinley County, northwestern New Mexico. A gathering line for the plant is being laid into the Hospah dome field which will furnish crude for the operation of the new unit. Other McKinley and San Juan County fields will also obtain a new market for their production in the refinery. The plant will be a combination topping unit. Operators expect to start crude runs in December of this year.

Imperial Spends $1,783,000 At East Calgary Plant

CALGARY, Alta.—Announcement is made by Supt. C. M. Moore that installation of the new combination unit at the Imperial Oil refinery in East Calgary will be completed before the end of the year. The unit, constructed at a cost of $1,783,000, will increase the plant capacity to 9,600 bbl. per stream day.

Ben Franklin Refining Co. Completing Construction of New Cracking Unit

This week the present cracking equipment of the Ben Franklin Refining Co. plant at Ardmore, Okla., is being shut down preparatory to hooking up with the new Dubbs cracking unit with a charging capacity of 4,000 bbl. per day.

W.P.R.A. Technical Meeting At Shreveport October 27

Another of the 1939 series of technical meetings sponsored by the manufacturing committee of the Western Petroleum Refiners Association will be held at the Washington-Youree Hotel, Shreveport, La., Friday, October 27.

Three papers will be delivered: "Inhibitors for Cracked and Polymerized Gasolines," by W. W. Scheu-

mann, Cities Service Oil Co., of Tulsa. "Combination Reforming and Polymerization," by Dr. M. B. Cooke, of the Alco company, and "Treating in Transit," by R. P. Lowe, Proportioneers, Inc.

A demonstration of tube rolling by the Key company of East St. Louis, Ill., will be held at the Arkansas Fuel Oil Co.'s plant at Shreveport.

Turnery Valley Plant Starts Operations

TURNER VALLEY, Alta.—The newly completed Dubbs cracking plant of the Gas & Oil Products, Ltd., refinery in South Turner Valley has commenced operations.

Natural Gas

East Ohio Gas Co. Tests The Natural Gas Act

CINCINNATI, Ohio.—East Ohio Gas Co. has filed a petition in the U. S. Circuit Court of Appeals for the Sixth Circuit, challenging the Federal Power Commission's order of February 14, 1939, which identified the East Ohio Gas Co. as a natural gas company under the Natural Gas Act. The commission further ordered the gas company to file an inventory and a statement of the original cost of its property used in the transportation of natural gas from the Ohio River to Cleveland.

The order came out of a rate controversy with the city of Cleveland in 1938. The company claims the order is void because the commission did not give the company an opportunity to argue either on the issue of the commission's jurisdiction or on the issue of the unconstitutional character of the order.

This is the first opportunity presented to any court to consider the scope and purpose of the Natural Gas Act and the powers it confers on the Federal Power Commission.

The gas company states that it is important to the gas industry and to state commissions that it be promptly decided whether the powers claimed by the Federal Power Commission have been granted or withheld and whether investigations of a character so long solely conducted by state commissions are now to be duplicated by a federal commission.

Frank H. Adams Is New A.G.E.M. President

"There are impounded today in America vast resources of capital, the use of which can be had by American industry provided in return for that use industry shall accept its fair responsibility in the promotion of the general welfare of the country," E. R. Guyer, of Chicago, retiring president of the Association of Gas Appliance and Equipment Manufacturers, declared at the fourth annual meeting in New York.

Frank H. Adams, vice president and general manager, Surface Combustion Corp., of Toledo, Ohio, and a director of the American Gas Association, was elected the new president. Merrill N. Davis, executive vice president, Dresser Manufacturing Co., Bradford, Pa., was chairman of the general nominating committee.

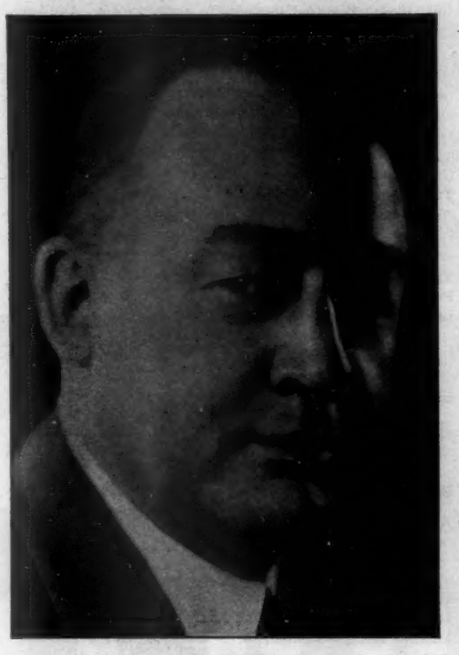
Tanker Named for Historic Clipper

KEARNY, N. J.—The fourth of six cargo vessels of the C-2 type which Federal Shipbuilding and Dry Dock Co., subsidiary of United States Steel Corp., is building for the United States Maritime Commission, was christened the S. S. Flying Cloud by Mrs. Emma Guffey Miller, sister of Senator Guffey of Pennsylvania. The Flying Cloud takes her name from the clipper ship of that name built by Donald McKay of East Boston, which was launched on April 15, 1851.

Pipe-Line Activity

E. J. Henry Now President, Atlantic Pipe Line Co.

PHILADELPHIA, Pa.—At a meeting of the board of directors of Atlantic Pipe Line Co., subsidiary of Atlantic Refining Co., E. J. Henry, vice president and director of Atlantic Refining Co., was elected president of Atlantic Pipe Line Co.



E. J. HENRY
President, Atlantic Pipe Line Co.

Mr. Henry attended Girard College, Philadelphia, and entered the employ of Atlantic Refining Co. at 17 as a junior stenographer. He was elected assistant secretary in 1915, a director in 1923, and vice president in 1931.

Continental to Replace 25 Miles of Pipe Line

Confirming purchase by Continental Oil Co. of the Crude Oil Pipe Line Co. and related companies, comprising about 225 miles of pipe line, a 500,000-bbl. deep-water terminal at Corpus Christi, and a lease of 105 acres in the Conroe field, Montgomery County, Texas, with five producing wells, J. G. Dyer, vice president, said:

"The newly acquired system will be a common purchaser of crude in its connected fields and will be expanded to meet situations as they arise. Plans are now in preparation to increase the capacity of the main line by replacing 26 miles with new 8-in. line. The 26 miles of 5½-in. line so obtained will be used to connect Continental's large property in Duval County, which is 14 miles from the main line."

Safety Precautions Taken By Pipe-Line Companies

Replies to a questionnaire sent to 49 pipe-line companies by the National Safety Council were received from 32 having 53,363 miles of trunk line and employing 19,000 men over 24 states.

Twenty-three systems report formal safety organizations supervised by safety engineers, inspectors, or personnel and safety departments. Twenty companies carry on the work through committees, meeting monthly. Twenty-seven use safety bulletin boards, with posters or bulletins changed weekly or biweekly. Twenty-six companies carry on safety inspections by inspectors, supervisors, engineers, or superintendents.

First aid training is conducted by 21 companies, 13 of which report that 100 per cent of employes have been trained, while the remaining systems have trained 82 per cent, or an average of 93 per cent. This indicates approximately 17,500 employes have received first aid training.

Kanotex Starts Laying Line To the Wilson Pool

Kanotex Refining Co., Arkansas City, Kans., has started laying a 2-in. 4½-mile line from the Turner pool in Township 32-6e, to the new Wilson (Arbuckle) pool in Township 33s-6e. Previously, operators were trucking production to the Burden pool where it was pumped to Socony-Vacuum Oil Co., Inc., trunk line.

Texas-New Mexico to Lay Lea County Pipe Line

HOBBS, N. M.—Construction of the completing leg of its gravity gathering system in Lea County is expected to get under way immediately as Texas-New Mexico Pipe Line Co. last week awarded contract for a 19-mile 14-in. line from its station in the Monument field to a point east of the Penrose and Skelly fields. Here it will be tied into a 21-mile 14-in. carrier laid last August down Monument Draw to the company's main-line station at Jal. This line, under gravity flow, is rated at 42,000 bbl. daily. At the Monument-field station the 14-in. line ties in with a recently completed 21-mile 10-in. gravity line serving the Vacuum field and a 16-mile 5½-in. gravity carrier running to the South Lovington field.

Lone Star Planning Line To Serve Texas Towns

FORT WORTH, Tex.—Lone Star Gas Co. proposes to build a 6-in. line between Buffalo and College Station to serve gas to the towns of Madisonville, Centerville, Normangee and Leona. Construction will hinge upon the interest manifested by consumers.

Lone Star is the principal purchaser of gas from the Long Lake and Cayuga fields. A 20-in. carrier from the Long Lake field, through Cayuga serves Dallas and other North Texas areas. Another line from the Long Lake field serves Central Texas towns.

Mexico Announces Line From Poza Rica Field

MEXICO.—Construction of a pipe line from Poza Rica, Vera Cruz, to Mexico City will be started next month, the secretary of national economy announced. The pipe and accessories were bought in the United States.

According to the announcement, the line was ordered to increase the fuel supply to industries in Central Mexico.

K.M.A. Gathering Line

WICHITA FALLS, Tex.—In the northwest area of K.M.A., Sinclair Prairie Pipe Line Co. is laying 4 miles of 4-in. pipe from its closest artery and will connect two wells on the Ancell and W. T. Waggoner leases in that sector. Two other producers in that vicinity were due for completion this week and will be tied in. Sinclair Prairie has also taken over all connections formerly connected to the Mankins refinery of Paluxy Asphalt Co., which is now shut down.

PROGRAMS AND MEETINGS

Pacific Coast Geologists Meet in Los Angeles

The sixteenth annual meeting of the Pacific section of the American Association of Petroleum Geologists will be held at the Ambassador Hotel, Los Angeles, Calif., November 9 and 10. Several geologists from the Mid-Continent are planning to attend, including: A. I. Levorsen of Tulsa, past president of the association; Pres. Henry A. Ley, Southern Cross Oil Co., San Antonio, and E. E. Rosaire, past president of the Society of Exploration Geophysicists, Houston.

Thursday, November 9

Henry A. Ley, presidential address.

E. E. Rosaire, "Soil Analysis."

Also papers on "Heavy Materials," "Present Ocean-Bottom Depths," and "Core Analysis."

Friday, November 10

Symposium, "Recent Developments."

Symposium, "The Eocene."

Los Angeles geologists in charge of the meeting: Albert Gregersen, Texas Co., program; E. J. Bartosh, Bankline Oil Co., general arrangements; Roy M. Barnes and H. D. Hobson, Continental Oil Co., president and secretary-treasurer, respectively, of the Pacific section.

S.A.E. Meeting Scheduled For Tulsa November 2-3

Brig. Gen. George H. Brett and Col. A. W. Herrington will be chief speakers at the meeting of the Fuels and Lubricants Division of the Society of Automotive Engineers, November 2-3 at the Mayo Hotel, Tulsa. General Brett, chief, Material Division, U. S. Aviation Corps, will speak on "The Present Trend in Design and Size of Military Aircraft." Colonel Herrington is president of Marmon-Herrington Co. and an authority on foreign armaments.

According to B. E. Sibley, Continental Oil Co., general chairman, the program is of timely interest. Other papers scheduled include, "Oil Industry Power," by Prescott C. Ritchie, Waukesha Motor Co.; "Vaporization Characteristics of Motor Fuels," by Alden, Trimble and Blair, Phillips Petroleum Co.; "Power Applications for the Movement of Earth," by J. M. Cavies, Caterpillar Tractor Co.; "Hypoid Lubricants," by Dr. C. F. Prutton and A. O. Willey, Lubri-Zol Corp.; "Observations on Tractor Fuels—Characteristics and Requirements," by E. L. Barger, Kansas State College; "Automotive Maintenance Cleaning Operations," by H. Liggett Gray, Oakite Products, Inc.; "Metal-Cutting Tests Using Butane, Propane, and Acetylene," by William T. Tiffin and Ottie Eads, University of Oklahoma. At the November 3 evening session there will be a debate between engineering students of Kansas State University and the University of Oklahoma: "Resolved, That V-Type Engines Are to Be Preferred to In-Line Engines for Passenger-Car Equipment." All the sessions are open to all petroleum and production engineers.

Aside from Mr. Sibley, other members of the arrangements committee are W. F. Lowe, Natural Gasoline Association, local chairman; J. V. Brazier, Barnsdall Refining Co.; T. J. Schuetz, Braden Winch Co.; C. A. Tangner, Diesel Power Co., and C. S. Hanson, Phillips Petroleum Co.

West Texas Geologists Announce Field Trip

The West Texas Geological Society annual fall field trip will be held this year in the Llano-Burnet region, immediately following the annual convention of Texas Academy of Science meeting at the University of Texas, Austin, Tex., November 8, 9 and 10. Hal P. Bybee, chairman of the department of geology of the University of Texas, recently conferred with officers and members of the West Texas Geological Society regarding details of the trip. Present plans call for West Texas and other geologists, not attending the convention, to meet at Brady, Tex., Friday night, November 10, to be joined Saturday morning by members of the Texas Academy of Science from Austin for that day's trip through part of the Llano-Burnet area. Headquarters, Saturday night, will be Austin, Tex., where the geologists and academy members will attend a dinner at the university. Sunday morning, November 12, the field trip will continue through the remaining part of the Llano-Burnet area, breaking up Sunday evening.

Geologists making this field trip will be given a special opportunity to study pre-Pennsylvanian stratigraphy. Recent flush production obtained from the Ellenburger limestone, Lower Ordovician, in Pecos County, Texas, has aroused new interest in detailed stratigraphic study of the Ellenburger section itself.

Officers of the West Texas Geological Society, Midland, Tex., an affiliate of the American Association of Petroleum Geologists are: President, Berte R. Haigh, University Lands; vice president, W. C. Fritz, Shell Oil Co., Inc.; secretary-treasurer, J. E. Simmons, Continental Oil Co.

Twenty-Five Year Club Inauguration Date

The Twenty-Five Year Club, suggested by Dick Wotowitch, composed of members who have served 25 years in the industry, will be inaugurated during the meeting of the A.P.I. at the Stevens Hotel, Chicago, November 14, with a dinner and entertainment. The club now has 180 members.

N.P.A. Meetings Schedule

"Economies Resulting From Efficient Combustion Control" will be discussed by O. F. Campbell, combustion engineer, Sinclair Refining Co., at meetings of the department of manufacture, October 25, at Conewango Club, Warren, Pa.; October 26 at the City Club, Oil City, Pa., and October 27, at the Willard Hotel, Butler, Pa.

A.C.S. 1940 Meeting

January 12, 1940, Perkin Medal award (election now in progress). Joint meeting with American Chemical Society, American Institute of Chemical Engineers, Electrochemical Society and Societe de Chimie Industrielle, New York.

MAGNETIC STORM

TUCSON, Ariz., Oct. 16.—A severe storm began October 12 at 8 p.m. and ended October 15 at 8 a.m., central standard time.

CALENDAR OF EVENTS

October

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, Petroleum Division, Los Angeles, Calif., October 19-20.

WEST VIRGINIA PETROLEUM ASSOCIATION, Hotel Daniel Boone, Charleston, W. Va., October 25.

WESTERN PETROLEUM REFINERS ASSOCIATION, regional technical meeting, Washington-Youree Hotel, Shreveport, La., October 27.

November

SOCIETY OF AUTOMOTIVE ENGINEERS, fuels and lubricants meeting, Mayo Hotel, Tulsa, November 2-3.

AMERICAN PETROLEUM INSTITUTE, Division of Production, Illinois basin chapter, Masonic Temple, Salem, Ill., November 3.

NATIONAL MOTOR TRUCK SHOW, Navy pier, Chicago, November 8-16.

GAS-LIFT CONFERENCE, at Texas A. & M. College, College Station, addressed by S. F. Shaw, November 9-11.

AMERICAN PETROLEUM INSTITUTE, twentieth annual meeting, Stevens Hotel, Chicago, November 13-17.

TWENTY-FIVE-YEAR CLUB OF PETROLEUM INDUSTRY, first annual meeting and dinner, Stevens Hotel, Chicago, November 14.

AMERICAN INSTITUTE OF CHEMICAL ENGINEERS, Providence, R. I., November 15-17.

CALIFORNIA NATURAL GASOLINE ASSOCIATION, annual fall meeting, Los Angeles, Calif., November 17.

December

WEST CENTRAL TEXAS OIL AND GAS ASSOCIATION, Abilene, Tex., December.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, Philadelphia, Pa., December 4-7.

PETROLEUM ELECTRIC POWER ASSOCIATION, eleventh annual conference, Texas State Hotel, Houston, Tex., December 14-15.

January 1940

SOCIETY OF AUTOMOTIVE ENGINEERS, annual meeting, Book-Cadillac Hotel, Detroit, Mich., January 15-19.

February

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, New York, February 12-15.

April

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, twenty-fifth annual meeting, Stevens Hotel, Chicago, April 10-12.

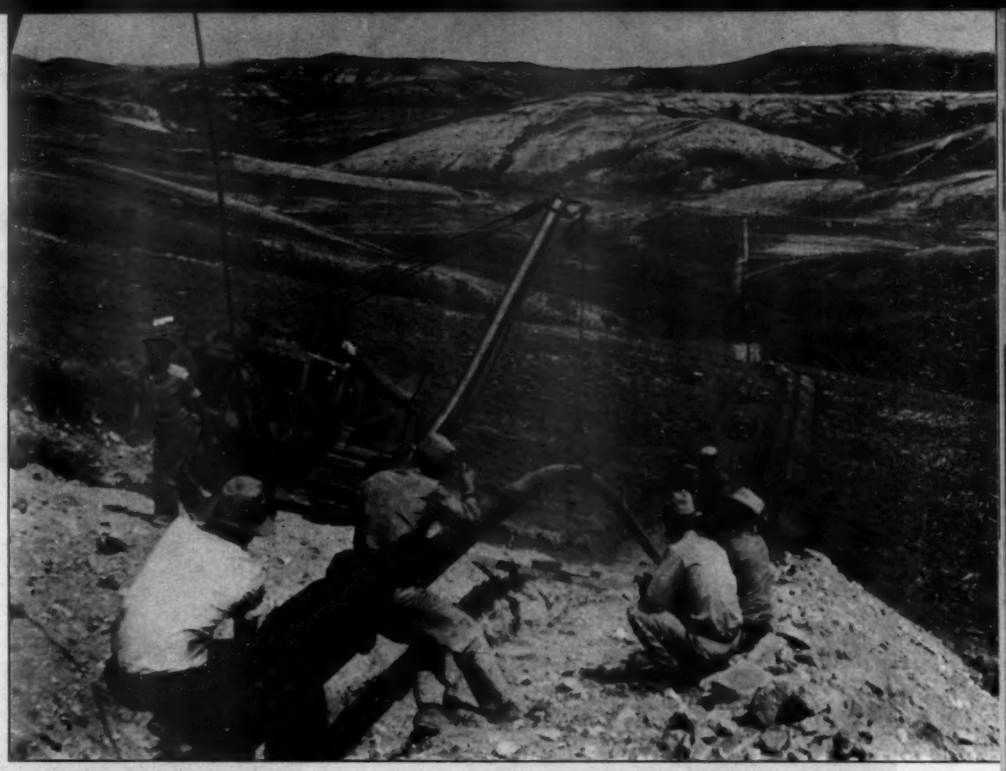
AMERICAN PETROLEUM INSTITUTE, eastern district, Division of Production, Columbus, Ohio., April 11-12.

NATIONAL PETROLEUM ASSOCIATION, semi-annual meeting, Cleveland Hotel, Cleveland, Ohio, April 18-19.

May

NATURAL GASOLINE ASSOCIATION OF AMERICA, annual convention, Hotel Tulsa, Tulsa, May 15-17.

INTERNATIONAL PETROLEUM EXPOSITION, Tulsa, May 18-25.



Lining up pipe on the skids after making an overbend in the course of constructing the 8-in. line for Utah Refining Co. The line runs from Fort Laramie, Wyo., to the company's refinery at Salt Lake City. On this job Williams Brothers Corp. employs the stovepipe method of laying pipe which consists of adding one joint at a time to the line already laid instead of welding several joints in a section to be added to the line as is done with the firing-line method

ENGINEERING & OPERATING

OCTOBER 19, 1939

In This Section

HYDROCARBON MIXTURES IN CONDENSATE PRODUCTION
By A. L. Vitter, Jr. ..... Page 48

A graphic presentation of data which explain the possibilities and limitations of retrograde condensation is included in the article. In these, the relationship of pressure and temperature to liquid recovery within a butane-propane system is revealed in accordance with experimental data derived in several recognized laboratories.

ABSTRACTS OF PAPERS PRESENTED AT THE A.I.M.M.E. MEETING ..... Page 52

WARREN BUILDS NEW GASOLINE PLANT IN TEXAS
By H. W. Harris ..... Page 66

Utilizing high-pressure closed-steam system to recover the absorption oil, the operation of Warren Petroleum Corp.'s new gasoline plant at Fairlax, Tex., is described. The plant not only recovers a high-octane-value natural gasoline but also about 4,000 gal. of butane each day.

COST OF H2S REMOVAL FROM REFINERY AND SOUR NATURAL GASES
By Basil Storrs ..... Page 69

The cost of removing hydrogen sulfide from natural and refinery gases has been made the chief subject for discussion when either is offered for utilization. The cost naturally depends upon the degree of sourness of the gas and the nature of that sourness. Here the author discusses in detail the relationships that exist.

METALS IN DRILLING—By W. L. Nelson ..... Page 57

OPERATING IDEAS ..... Page 65

SAFETY—Sign Indicates Attitude of Workmen ..... Page 70

QUESTIONS ON TECHNOLOGY—By C. K. Francis, Ph.D. ..... Page 71

Close-up of extraction and fractionation equipment at the Tide Water-Seaboard plant in Cayuga, Tex. Water cooling, gas expansion and ammonia refrigeration bring plant temperatures below 0° F. and at which higher yields of distillate and operating efficiencies are obtained

Phase Retrograde Phenomena of

Hydrocarbon Mixtures in Condensate Production

By A. L. VITTER, JR.

Louisiana Department of Conservation
Division of Research and Statistics

MOST of the important technical and economical problems in petroleum production today are all intimately tied in with the knowledge of the fundamental behavior of hydrocarbon mixtures. With the advent of deep drilling and the discovery of high-gravity reserves, petroleum-production engineers have encountered new phenomena which have necessitated quite serious changes in production methods and practices. It is the object of this paper to present a review of this subject, point out our present status, and show the direction toward which research must turn to facilitate the solution of these technical and economical problems.

Before going into the details of these problems it will be well if we look at them from a distance so that we do not lose sight of the fundamentals. The technical problems and the economical problems are inseparable. Low reserves per acre-foot, as compared with crude oil, together with the cost of a recycling and recovery plant, are the economic criteria on which any production method for commercial condensate production must be judged. This problem is even more acute for small pools of rather small total reserves. A simple calculation will show the comparison of crude oil to condensate in place. These relationships may be expressed as follows:

$$R_{crude} = 7{,}751\ \phi\ S \qquad \text{(based on liquid volume)}$$

$$R_{cond.} = 36.7\ \frac{\phi\ P_r}{\mu_r T_r}\ \text{g.p.m.} \qquad \text{(based on gas volume)}$$

Where

R_{crude} = barrels crude oil in place per acre-foot
$R_{cond.}$ = barrels condensate in place per acre-foot
g.p.m. = gallons of liquid (e.g., *n*-butane plus) per m.c.f. in reservoir

$$7{,}751 = \frac{\text{43,560 c.f. per acre-foot}}{\text{5.62 c.f. per bbl.}}$$

$$36.7 = \frac{\text{43.56 m.c.f. per acre-foot}}{\text{42 gals. per bbl.}} \times \frac{\text{520° R.}}{\text{14.7 lb./sq. in.}}$$

ϕ = porosity, fraction
S = shrinkage factor, ratio of residual to reservoir crude oil volume
μ_r = supercompressibility factor at reservoir pressure and temperature, ratio of volume at these conditions to that of ideal gas under same conditions
P_r = reservoir pressure, lb. per sq. in.
T_r = reservoir temperature, °R. or 460° + °F.

from which,

$$\frac{R_{crude}}{R_{cond.}} = 211.3\ \frac{\mu_r S}{\text{g.p.m.}} \times \frac{T_r}{P_r}$$

Just to get a rough idea of the magnitude of this ratio in sands of the same porosity, a hypothetical but typical case of the following properties is considered:

P_r = 3,500 lb. per sq. in.
T_r = 190° F. = 650° R.
μ_r = 0.8
S = 0.75
g.p.m. = 1.0

$$\frac{R_{crude}}{R_{cond.}} = 23.5$$

These equations are strictly true only for a condensate reservoir above or at the dew point; that is, the pressure and temperature must be above or at the point at which condensation of a liquid phase commences in the reservoir. It may also be used for a reservoir below the dew point, but the condensate in place obtained will only be that due to the gas phase. Per cent recovery of condensate in place under pressure maintenance

HIGH-PRESSURE GAS SERIES

This is the third of a series of five articles discussing the modern problem of gas-distillate wells and plants for recovering the condensate, including use of the residue gas for formation repressuring or pressure maintenance. Previous articles appeared October 6, Page 34 and October 12, Page 43

is usually better than per cent recovery of crude oil in place under pressure maintenance, so that the ratio of recoverable crude oil to recoverable condensate in the above-cited case might be 15 to 20. Many condensate pools have a richer gas than the 1.0 g.p.m. in the case cited and so would have a smaller crude oil to condensate recovery ratio, perhaps as low as 4 or 5.

Keeping these approximations in mind, one readily sees the vast economic difference between crude oil and condensate production. The method of production used must yield a recovery that permits an economic balance between plant operation, maintenance, and amortization of investment on the one hand and recoverable reserves on the other.

With this general perspective of condensate production as a background some of the technical

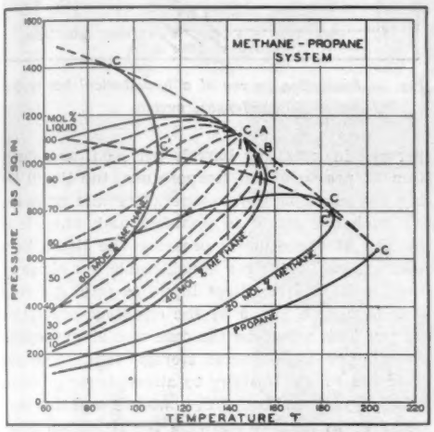


Fig. 1—Constant-composition phase diagram of methane-propane system. Data by Sage, Lacey and Schaafsma

problems will be better appreciated. The petroleum industry has long known of condensation by pressure reduction. In particular, the accumulation of a condensate in pipe lines from gas wells is especially common knowledge. This phenomenon was of little significance to the industry until the discovery of condensate fields made it assume a very prominent importance in the production of these fields. Condensation by pressure reduction was called retrograde condensation of the first kind by Kuenen[1] in 1895) and in 1901 Roozeboom[2] theoretically treated this phenomenon.

The name retrograde phenomena implies that these anomalies are backward processes as compared with that to which one is accustomed. Before considering the complexities of typical condensates it is perhaps well that these phenomena be illustrated by a hypothetical case using a substance with which everyone is familiar. Water, for instance, boils at 100° C. at standard atmospheric pressure and behaves like any normal substance in that region of temperature and pressure. By normal behavior it is meant that in order to condense the vapor at constant temperature it is necessary to increase the pressure. The temperature, of course, must be below the critical temperature. Steam at 101° C. would have to be compressed from 76 cm. to 78.76 cm. of mercury in order to condense it, but if water or steam around 100° C. exhibited phase retrograde properties the pressure would have to be reduced below 76 cm. in order to condense it. This analogy should not be extended any farther, as water, a one-component system, should not be used to illustrate a multicomponent phenomenon such as retrograde condensation. Water was used purely for simplicity.

To look further let us consider a simple but actual binary system. Sage, Lacey, and Schaafsma[3] investigated the system methane-propane and their results point out some very interesting properties that are applicable qualitatively to condensate mixtures.

Behavior of Propane

Propane alone behaves very much as any other gas or liquid as shown by its vapor pressure or dew-point curve, the lower one of Fig. 1. If now a mixture of propane and methane is considered the dew-point curves are continued on at points *C* by saturated liquid or bubble-point curves, the top halves of the loops. The region between the two halves of a loop is one in which both liquid and gas may exist in equilibrium. To make this clearer consider what happens at 120° F., for instance, as the pressure increases in the two cases cited. In the case of pure propane at 200 lb. per sq. in., it is a gas and remains a gas until it reaches the vapor-pressure curve at about 250 lb. per sq. in. when it begins to liquefy. All the gas will liquefy before the pressure is increased any farther and as higher pressures are encountered propane remains as a compressed liquid. Now consider what happens to a methane-propane mixture of 40 mol per cent methane as the same experiment is repeated. At 200 lb. per sq. in. it is a gas mixture, and continues so until the pressure reaches the dew-point curve at about 500 lb. per sq. in. when some of the gas begins to condense to the liquid phase, but just some of it and not all. As the pressure increases condensation increases until at about 1,200 lb. per sq. in. it is all liquid. Above that pressure it is a compressed liquid. The dotted curves in Fig. 1 show the mol per cent liquid in the region of gas and liquid for

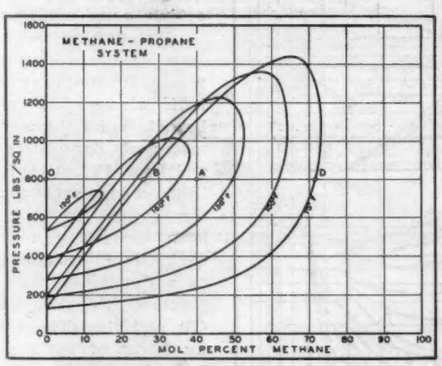


Fig. 2—Constant-temperature phase diagram of methane-propane system. Data by Sage, Lacey and Schaafsma

the 40 mol per cent methane mixture. If one repeats this experiment at 150° F. instead of 120° F., retrograde vaporization of the first kind is encountered. That is, one proceeds from all gas at the lower pressures to the beginning of normal condensation at about 770 lb. per sq. in. and condensation continues with increasing pressure until somewhere near 1,000 lb. per sq. in and 25 mol per cent liquid where the process reverses itself and further increase in pressure causes the liquid to vaporize in a retrograde manner. This continues until about 1,070 lb. per sq. in. when it is all vapor and thereafter exists in the uniform fluid region.

The effect of retrograde condensation or vaporization of the first kind is probably better brought out in Fig. 3 where mol per cent liquid is plotted against pressure at different values of the parameter temperature. Another interesting diagram is shown in Fig. 2, which is plotted from the data of Fig. 1. Here the temperature is held constant as a parameter for several curves and mol per cent methane is plotted against pressure. The region inside the loop is one of gas and liquid. The fraction of the total mols which is liquid is given by *AD/BD* and the gas by *AB/BD*. This may be easily deduced as follows: If y represents the mol per cent gas and x the mol per cent liquid then there exist two equations in x and y, the solution of which determines their value. These equations are:

$$OB\ x + OD\ y = OA$$
$$x + y = 1$$

The second equation is self-explanatory from the definition of x and y. The first simply states that the mol per cent of methane (*OA*) is made up of two parts, that in the liquid state (x mol per cent saturated liquid of which *OB* is the mol per cent methane and that in the gaseous state (y mol per cent saturated gas of which *OD* is the mol per cent methane). From these equations the above-stated mol percentages of liquid and gas follow. It is in this way that the dotted curves of Fig. 1 were calculated.

It is known that the pressure-temperature range in which retrograde phenomena occur is larger as the difference in critical temperatures of the constituents of the mixture increases.[4] Methane and propane have critical temperatures of —115° F. (—82° C.) and 212° F. (100° C.), respectively, so that their mixture very well shows the retrograde phenomena. This fact also explains why these phenomena are so important in condensate production, which is rich in the lighter hydrocarbons whose critical temperatures are more widely separated.

Problem Not Easily Approached

When one considers complex mixtures the problem is not so easily approached. Katz and Hachmuth[5] took a typical Mid-Continent crude oil (38.4° A.P.I.) and natural-gas mixture and determined its phase behavior. Their results are reproduced here in Fig. 4 in terms of the equilibrium constants of the constituents, which is the ratio of the mol fraction of a constituent in the vapor phase to its mol fraction in the liquid phase. These constants may be used to calculate production and reservoir engineering problems as outlined by Katz[6] and Buckley.[7] The information so calculated checks actual experimental data very well provided the equilibrium constants are applied to a mixture having approximately the same composition as the mixture used by Katz and Hachmuth in obtaining the equilibrium constants. However, as the gap between the two mixtures

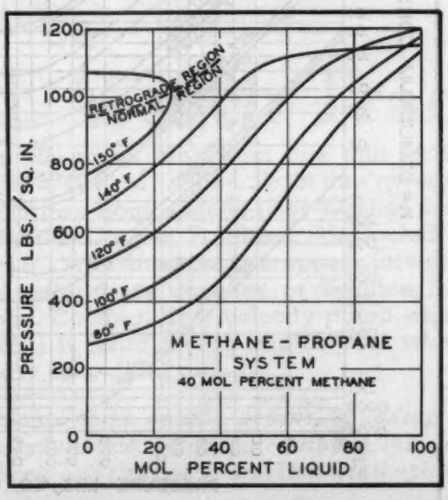


Fig. 3—Effects of retrograde phenomena in methane-propane system, 40 mol per cent methane. After data secured and presented by Sage, Lacey and Schaafsma[3]

becomes wider so does the calculated information become less reliable. The equilibrium constants of the lighter members of the paraffin hydrocarbon system change the most with variations in the amount of a constituent due to the fact that the solubility of the solutes is greatly changed by these variations of the solvent although the equilibrium constants of the solvents are not so greatly changed. Besides, errors in the equilibrium constants of the heavier hydrocarbon components (heptanes plus, e.g.) in a given system have little effect on all ordinary volumetric production calculations where the equilibrium constants are very small numerically as compared with those of the lighter hydrocarbons. At reservoir, or near-reservoir pressures this is not so, due to the retrograde effect, and one must be careful in using the constants in this region as brought out in Fig. 4. Of course, the equilibrium constants of heptanes plus will be very materially different in a system having a residue of a different phase nature.

The reason for the variations of the equilibrium constants among different mixtures is, of course, due to the fact that they are not only functions of temperature and pressure but also of the composition of the mixture. To be more explicit, we may represent them as functions of all the variables they really depend upon as follows:

$$K_1 = f_1\ (T, P, C_1, C_2, \ldots, C_n, C_r, R)$$
$$K_2 = f_2\ (T, P, C_1, C_2, \ldots, C_n, C_r, R)$$
$$\ldots \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$$
$$K_r = f_r\ (T, P, C_1, C_2, \ldots, C_n, C_r, R)$$

where

T = temperature
P = pressure
C_1 = mol per cent methane
C_2 = mol per cent ethane
C_n = mol per cent nth hydrocarbon (e.g., n-hexane)
C_r = mol per cent residue (e.g., heptanes plus)
R = residue characterization factor, depends on phase properties of residue.

For example, the equilibrium constant of methane depends on the temperature (T), pressure (P), mol per cent methane (C_1), mol per cent ethane (C_2), . . . , mol per cent heptanes plus (C_r), and the characterization factor for the phase properties of heptanes plus (R). Actually, R might involve several variables depending on the desired accuracy. Sage, Hicks, and Lacey[8] use the viscosity-gravity factor, for instance. These equations represent the ultimate information which it would be desirable to have in order exactly to know the phase behavior of a mixture under various conditions. In practice, correlation cannot be so precise at this date, but it is always well to have in mind the ultimate goal. Sage, Hicks, and Lacey,[8,9] have published a correlation for the lighter hydrocarbons expressing the equilibrium constants as a function of temperature (T), pressure (P), and viscosity-gravity factor of the hexanes plus (R).

Now that we have added a review of the fundamental phase phenomena to our background we might look at some of the practical problems of condensate production. Some typical condensate production curves are shown in Fig. 5. The horizontal line indicated by C_4+ represents the total amount of hydrocarbons in the well stream recoverable as a liquid at atmospheric conditions, which may be arbitrarily taken as n-butane and heavier as implied by the symbol C_4+. The other curves have the following meaning. The accumulation curves represent the liquid-gas ratio expressed in g.p.m. or barrels per μ.c.f. as a function of pressure and temperature, the liquid being measured at that temperature and pressure. As such the liquid is unstable and when it is flashed at atmospheric pressure the liquid loses solution gas causing a considerable shrinkage of the liquid. The resultant liquid to total gas ratio is indicated in Fig. 5 by the one-stage separation curves. This would be the case of a single separator and an atmospheric storage tank. The gas liberated in the flashing to atmospheric pressure takes a good amount of C_4+ with it and this may be saved in part by allowing the reduction to atmospheric pressure to occur in steps, the gas phase being removed at each step. The four-stage separation curves show the resulting liquid-gas ratio. This would be the case of three separators and an atmospheric storage tank. The pressure represented by the abscissa of the graph always represents the pressure of the first separator. The pressures of the following separators are taken to be at their optimum pressures to give maximum liquid at atmospheric storage. These optimum pressures have been shown by Kimmell and Huntington[10] to be approximately given by the relation:

$$\frac{P_1}{P_2} = \frac{P_2}{P_3} = \ldots = \frac{P_n}{P_s} = R = \sqrt[n]{\frac{P_1}{P_s}}$$

where

P_1 = first-stage pressure
P_2 = second-stage pressure
P_3 = third-stage pressure
P_s = storage pressure
n = number of interstages
R = stage-pressure ratio

These curves are all given at temperatures of 70° F. and 100° F. Some multistage separation plants have materially increased the recovery by refrigeration. Means must then be taken to avoid trouble with the formation of gas-hydrates. There are other slight modifications of this system but the main points of stage separation are brought out in Fig. 5. The main disadvantage is that the optimum first-stage separator pressure is relatively low. Lower temperatures allow greater recovery at the same pressure but the optimum pressure at which an even greater recovery is possible is unfortunately shifted to lower pressures. The loci of optimum points of the various groups of curves of Fig. 5 are shown by dotted lines. The significance of this is that recycling which is so essential in condensation production,

(Continued on Page 60)

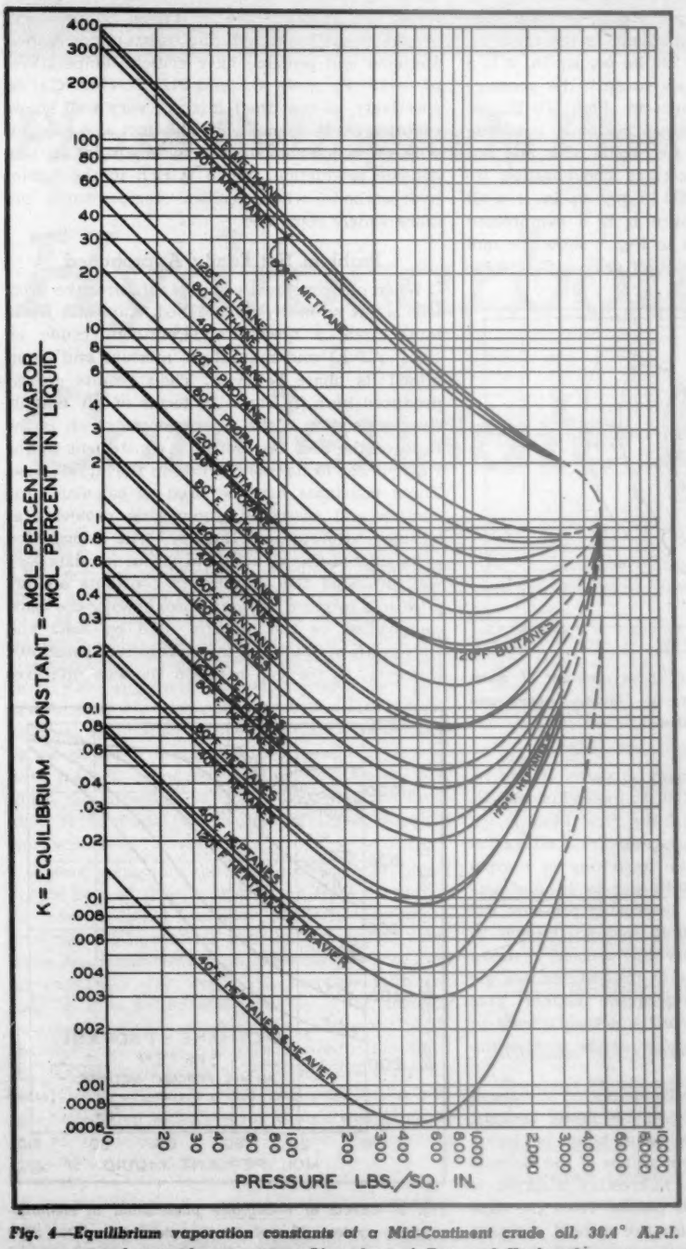


Fig. 4—Equilibrium vaporation constants of a Mid-Continent crude oil, 38.4° A.P.I. and natural-gas system. After data of Katz and Hachmuth[5]

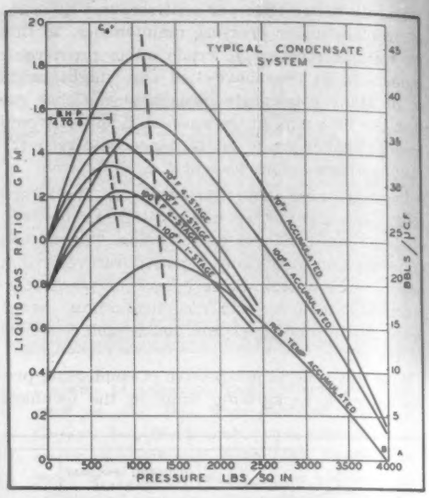
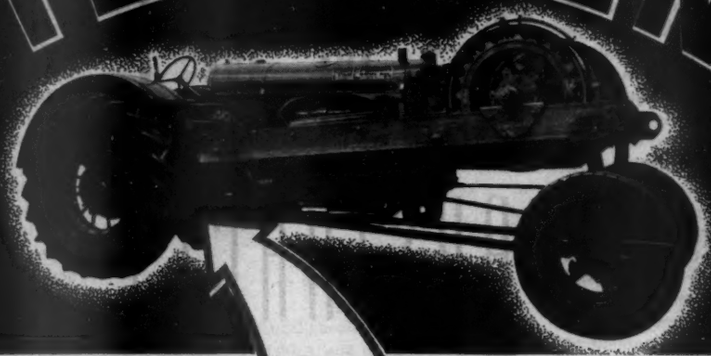
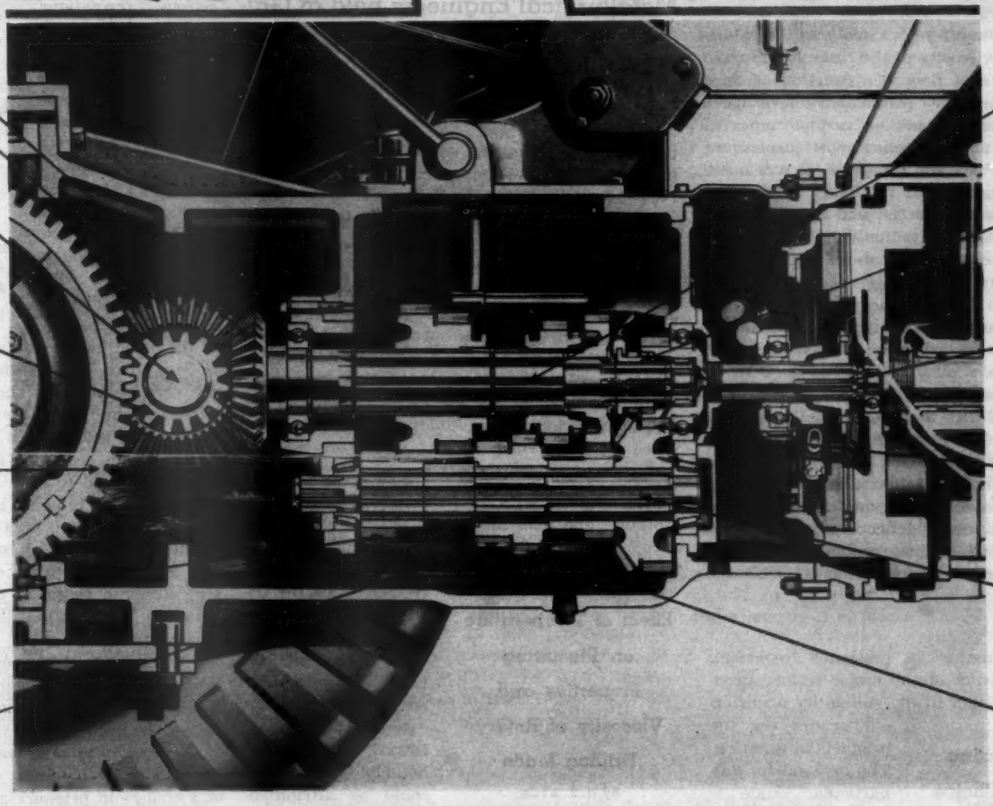


Fig. 5—Production curves of a hypothetical but typical condensate system

BRUTE STRENGTH



For Your Protection


Bevel gears—Increased capacity, approx. 40%
Cross shaft—Rigidity increased 85%
Road gear pinion—Increased capacity 57%
Ring gear—Increased capacity 86%
Low gear—Increased capacity 44%
Second gear—Increased capacity 57%
Bevel pinion shaft—Increased capacity 60%
Fourth gear—Increased capacity 36%
Clutch shaft—Increased capacity 58%
Clutch shaft pinion—Increased capacity 34%
Counter shaft—Increased capacity 63%
Third gear—Increased capacity 30%

Transmission of A-C Model E Winch Tractor

The transmission of the new Allis-Chalmers E Winch Tractor is heavy duty, tractor type, incorporating greater safety factors than ever before. ***Look at capacity increases.*** **Besides being ruggedly constructed, with every piece being fabricated from materials determined to be best suited for the part, the design is simple. Large inspection openings are provided. Length overall 35½". Depth 20".**

It is equipped with heavy duty, deep groove ball bearings and Timken bearings throughout. All shafts and bearings run in oil. Engine is A-C heavy duty, tractor type, four cylinders, 5¼" bore, 6½" stroke. Torque 375 ft. lbs. at 650 to 700 r.p.m. Maximum line pull 54,700 lbs. Drum capacity 9740 ft. of ½" line. Eight line speeds, from 49' p.m. to 1095' p.m. Road speeds 15 or 30 miles per hour, maximum. Brakes, Cooper, Patented, Air-Cooled. Diameter 34", Face 6". Transmission, four speeds forward, one reverse. Fuel, natural gas, gasoline, or distillate. Lubrication, force feed. Cooling, high velocity pump, circulates 71 g.p.m. with 1 ft. head; keeps engine cool when running stationary as pulling unit.

Unit is available with double drums, spudding equipment, and rotary drive. Can be equipped for delivery with dual wheels and tires on rear. Also telescoping mast.

A.I.M.M.E. ABSTRACTS

Papers presented before the Fall meeting of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers held at Galveston, Texas, October 5-7

●

A Study of Some Phases of Chemical Control in Clay Suspensions

By ALLEN D. GARRISON and K. C. TEN BRINK
Rice Institute

PAPER presented new data obtained and arranged in a different manner, with a view to making possible a better understanding of chemical reactions involved in the control of drilling-fluid characteristics during normal drilling operations. It discussed how viscosity characteristics of drilling muds may be varied by chemical treatments, and outlined how essential it is that accuracy be had in the measurement of clay or shale suspensions in the drilling fluid. It described the design and operation of new types of viscosimeters capable of functioning at a wide variety of speeds and at constant and continuous motion for a prolonged period. Such an instrument is needed as fluid characteristics are dependent on the rate of flow of the fluid, and viscosity usually falls off very rapidly as the rate is increased. Also, viscosity of the fluid at any fixed and constant rate of flow is a function of time. Characteristics of the instrument have been studied, using suspensions of various types of solids in water; and the behavior of suspensions of various solids has been observed. It was noted that viscosity starts at a relatively high value when the first motion starts, and as the motion continues the viscosity gradually falls to a value that may remain constant for an indefinite period. The viscosity may pass through a minimum and ultimately rise to higher values as motion is continued. A number of solids of different chemical and physical nature when suspended in water were found to have substantially the same speed viscosity relations.

The paper dealt with the effect of deflocculating agents, pointing out there are differences in the manner in which suspensions react when treated with small amounts of deflocculating agents. In the practice of reducing the viscosity of drilling fluids by the addition of deflocculating agents, it is observed that some fluids respond to the treatment to a much greater extent than others.

●

Factors Affecting the Refiner's Choice of Crudes

By G. A. BEISWENGER
Standard Oil Co. of New Jersey

Detailed information is presented regarding critical characteristics of the major refined products and the variation in the suitability of different crudes for the products in question. The demand for any particular crude is shown to reflect both the refiner's product requirements and the yield and quality of the specific stocks obtainable from that crude. Consideration is given to the effect of modern refining methods.

With relatively few exceptions, available processing methods and addition agents make it theoretically possible to produce any type of refined product from any crude source, although it may not be economically sound to do so. These improved refining methods have been developed not only to meet the demand for improved product quality, but also to enable the refiner to obtain quality products from crude sources which would not yield such products by the older refining methods. Despite the availability of such tools, the added processing costs involved and yields obtainable may render their application entirely impractical. There is a practical limit to which high-quality products can be produced from inferior feed stocks, and added costs involved can be justified only if sufficient crude of certain types is not available, or if its price is too high.

In view of the marked differences in the characteristics of products from various crudes, it is common practice for the refiner to analyze the crudes available to him. Results of these analyses permit him to make a proper selection of crudes in accordance with the processing equipment which he has available and his immediate product requirements, and to determine what changes in refining equipment are desirable with regard to future operations.

●

Effect of Temperature on Plastering Properties and Viscosity of Rotary Drilling Muds

By H. T. BYCK
Shell Development Co.

Studies and tests made of plastering properties of representative California drilling muds revealed that with untreated as well as with chemically treated muds, the filtration rates at elevated temperatures were higher than at low temperatures and in nearly every case this increased filtration rate was notably larger than could be attributed alone to the decreased viscosity of water, the flowing medium, at elevated temperatures. While no relationship was observed between mud viscosity and plastering properties, it was found that chemical treatment of muds for viscosity reduction shifted the temperature of minimum viscosity to appreciably higher values than for untreated muds. It is to be expected that elevated temperature will alter the plastering properties of a mud, since among other factors, the viscosity of water is diminished by increased temperature. If all other properties of the mud fluid and filter cake remained unchanged, this decrease in viscosity of water, the flowing medium in filtration, should cause an impairment in plastering directly related to its change in viscosity. In addition, accelerated flocculation at elevated temperatures should contribute to the impairment in plastering properties, through alteration in the physical structure and compressibility of the mud sheath leading to altered permeability of the sheath. The effect upon plastering of the known viscosity-reducing agents may be expected to vary with temperature.

The paper discussed the methods and procedure followed in conducting the test under well-hole conditions. It pointed out the difficulties of predicting plastering properties of drilling fluid at elevated temperatures from any simple calculation from the properties determined at low temperature. It was found that the average permeability of the mud sheath at the end of a test run increased steadily with increasing temperature. Such an increase in permeability is characteristic of flocculation and it is inferred that temperature flocculation is the cause of discrepancy between calculated and experimental results.

●

Properties of a Petroleum Reservoir Liquid and Its Residue With Application of Data to Production Problems

By KENNETH EILERTS, R. VINCENT SMITH, and A. B. COOK
Bureau of Mines, Bartlesville, Okla.

Efficient and economic production of petroleum requires knowledge of the properties of reservoir fluids and their characteristics of flow through porous formations. The change in properties and flow characteristics of fluids when their composition is altered as a result of reservoir-pressure decline is of special importance in planning well-spacing programs and production schedules. Retention of the greatest possible quantity of dissolved gas in the reservoir liquid generally is recognized as essential to maximum ultimate recovery of oil from the underground reservoir. However, production methods intending to maintain gas in solutions in the oil and resulting in the optimum economic recovery of oil not only vary from field to field but also may have to be changed from time to time in a given field as it is being depleted of its recoverable oil. Consequently there is need to investigate the properties of reservoir fluids corresponding to successive stages of reservoir depletion with a view of obtaining information essential to efficient production practices.

The investigation reported herein of the characteristics of a reservoir fluid and its residua has been limited to identification of the hydrocarbon samples by analysis and to measurement of those properties of each fluid that determine the energy available on expansion as a function of a change in pressure and temperature.

Methods for determining properties of a reservoir fluid that are of particular significance to production practice have been developed. The equipment and procedure essential to the methods have been described briefly and the data obtained from a typical reservoir fluid are presented. Practical applications of the data are illustrated, and suggestions are made regarding the additional information necessary for important extensions of applications.

Apparatus developed include: A steel pycnometer for measuring the specific volume of fluids having a high-vapor pressure; a simplified variable-volume cell for determining the expansibility of fluids under conditions of phase equilibrium; and a fractional-distillation assembly for analyzing the gas and liquid hydrocarbon samples.

Analytical data are presented on a complete set of gas and liquid samples taken during a well-flow test. The composition and properties of a prepared reservoir fluid and three of its residua obtained by liberation of dissolved gas are given. Isotherms were determined for the four fluids

in 30° F. intervals for the pressure range from 3,000 to below 50 lb. per sq. in. abs.

The loss of energy from frictional effects was evaluated for two fluid production rates in each of three sizes of flow strings. Subsurface pressures measured in a shut-in well offsetting a flowing well were applied to interpolation of the pressure gradients through the oil-producing structure at four rates of flow. The effect of changing fluid properties on the values of the gradients and the significance of the change in limiting withdrawal rates are discussed.

A development of particular interest to the petroleum technician is the analytical method described for comparing the compositions and other properties of hydrocarbon liquids obtained at different points in the flow stream. The amount of gas liberated from liquid solution and the resultant volume change in the solvent can be determined without knowledge of the pressure and temperature gradients and the type of liberation in the flow stream between the points at which the samples were taken. Production engineers are concerned with the decrease in energy that occurs as reservoir pressures decline because the methods and rates of recovery depend on this factor. The energy available by expansion of reservoir fluids having compositions corresponding to three stages of depletion were estimated from experimental data obtained from residua of the original fluid.

●

The outstanding problems in the further development of rotary-drilling fluids are considered in the light of colloid chemistry of clay suspensions as we know it today.

Colloid Chemistry of Clay Drilling Fluids

By A. G. LOOMIS, T. F. FORD, and J. F. FIDIAM
Shell Development Co.

Mechanisms of the effect of various chemicals now in general use to control the rheological properties of drilling muds are proposed with the hope that they may point the way to the successful solution of some of the unsolved drilling problems.

It is shown that viscosity-reducing chemicals are adsorbed on specific surfaces of the clay particles and that they reduce the viscosity of suspensions by destroying that portion of the absolute gel strength which is attributable to adhesion between particles. On the other hand, salts are not adsorbed but cause gelation and coagulation because of induced charges in the interparticle ionic atmosphere.

Results of a comparison of the viscosity-reducing effects of the polyphosphates with other standard viscosity reducers show that sodium pyrophosphate is one of the most effective. However, it is found that among the polyphosphates the pyrophosphate, which has the lowest molecular weight, produces the least permanent effect and that as the molecular weight increases to the decaphosphate there is a corresponding increase in the permanence of the viscosity lowering. This behavior suggests diffusion into inner particle surfaces, the weight of which decreases as the size of the adsorbed molecules is increased.

Proof is given that the tannate and pyrophosphate ions are adsorbed on the same surfaces of the clay particles and that the polyphosphates produce equal viscosity-lowering effects per molecule because they cover equal areas per molecule.

The application of thixotropy and gel strength to drilling problems is discussed in detail, and it is shown that while both elasticity and mechanical strength of clay gels are destroyed as a result of chemical treatment, the initial gelling rate of muds in the completely degelled condition is not significantly changed. An equivalent degree of gel strength which may differ in its mechanism, but not in its utility, may be regained in a treated mud by adding salt.

On the basis of the detailed structure of clays as revealed by X-ray analysis, chemical formulas are written for colloidal clay particles and utilized to explain most of the phenomena shown by clay suspensions. Finally, it is shown that the assumption of edge-to-edge contact to form structures in clay colloidal systems is in accordance with the experimental facts.

●

The value of natural-gasoline-plant operations to the producer includes not only the monetary consideration derived from the extraction of natural gasoline, butane and other liquid products, and from the sale of excess residue gas, but also a free service consisting of gathering, compressing and returning fuel gas for lease development and operation. The monetary return for liquid products usually is based on a certain percentage of the gasoline content which is dependent on variations of the price of the gasoline and the content of the gas, and sometimes on operating-pressure conditions. The residue gas is wholly returnable to the leases from which it was produced, and should it develop all this gas is not utilized by the producers for lease operations, the excess may be sold by the gasoline-plant operator, who retains one-half of the proceeds, distributing the remaining one-half prorata to all the producers of the gas. Another service to producers which cannot be evaluated in dollars and cents is the return of a residue gas suitable for fuel purposes. In many instances the green gas is too "wet" to be used as fuel, which might necessitate purchase of gas.

The Value of Natural-Gasoline-Plant Operations to the Producer in Some of the Major Fields of Texas

By W. H. WOODS
Gulf Oil Corp.

The paper presents statistical information covering revenue and returns to producers in natural-gasoline-plant operation in six representative fields in three different districts of Texas, these being Goldsmith and McElroy in West Texas; East Texas and Jefferson in East Texas, and Hardin and Heyser on the Gulf Coast.

●

The first large-scale water-flooding project in the Mid-Continent was started 4 years ago in the Nowata field of Oklahoma. Previously, possibilities of water flooding had not been realized by western operators. It was generally thought that the Bradford sand had certain qualities that made the practice operative there and that it would not work elsewhere. Opinion was that fresh water was necessary for successful operation and that types of water in the Mid-Continent were unsatisfactory.

With the Nowata operations and installations elsewhere it has been found that water flooding is equally applicable in other fields, and, after all, it is a secondary-recovery method capable of an initial-discovery performance and the recovery of quantities of oil greater than those furnished in the first cycle of natural production. Such recovery is real conservation and means redemption of millions of barrels of oil that otherwise would be lost, as only a fraction of oil in a reservoir ever is recovered by natural forces. There are thousands of acres of shallow producing territory in the Mid-Continent now idle or plugged and abandoned which can be revived by intelligent application of flooding.

Economics of Water Flooding

By K. B. NOWELS

Water flooding has proved economically practical. Between $5,500,000,000 and $6,000,000,000 has been invested in the producing branch of the oil industry, and on the basis of $1 per barrel, the return on investment has been less than 3 per cent. Over the past 17-year period the return has averaged less than 2 per cent and the highest return in any one year has been 4.96 per cent. Within the 11 years since flooding operations were originated, 15 major projects over the Bradford, Pennsylvania, district realized a net profit of $3,182,121 on an investment of $6,300,000, a 50.5 per cent return, or 4.59 per cent per year. At Bradford the cost of developing water floods is high, running $3,000 an acre.

Prior to installation of large-scale water flooding at Nowata it was estimated, using $1 as the price of crude, that a profit of $3,559,259 would be realized on an investment of $4,664,400, a return of 76.31 per cent, or 6.93 per cent per year. Experience has shown these preliminary estimates very conservative. The estimates were based on a prospective recovery of 4,400 bbl. per acre, while the first floods' yields already are above 6,000 bbl. per acre. Cost of developing water floods in the Bartlesville sand (depth 500 ft.) at Nowata run $800 to $900 per acre. Many producing areas exist shallower than at Nowata in which costs would be much lower. With equivalent thicknesses of sands the same financial return might be greater in those than at Nowata.

In flooding, due to sudden increase in production, the peak can be expected 3 to 6 months after production begins. There is a rapid return of investment, and the average good producing flood will pay out in 7 months to a year. The complete life cycle of most floods will run 2 to 6 years.

An attractive feature of flooding is its inherent adaptability to economic analysis and budget estimates. The amount of oil in place in approximate volume and the recovery can be determined readily, removing much of the risk and uncertainty of water-flood development. An operator may develop at will, and the reserves are more stable, facilitating financing if needed.

●

The gamma-ray well-logging apparatus has reached the stage at which it can be put to use in both open and cased holes in a variety of problems. Its application in detection of the presence of cement behind the casing in a well is described. For this work, carnotite, containing of the order of 10 per cent uranium oxide, is mixed with the cement pumped into the well. With the gamma-ray logging apparatus sensitive to uranium oxide, the top or presence of the cement is determined behind the casing. The method is more flexible than the temperature method in that it is not necessary to make the survey while the cement is still setting up; also, the circulation of mud has no disturbing effect, and, finally, the concentration of ore added to the cement can be varied to give a sufficiently large change in gamma-ray intensity, even though the treated cement may be pumped behind the old cement.

Detection of Radioactive Cement in Cased Wells

By LYNN G. HOWELL and ALEX FROSCH
Humble Oil & Refining Co.

However, it must be remembered that the locations of formations behind radioactive cement

cannot be found with the gamma-ray method since the feeble radioactivity of the formations is masked by the strong radioactivity of the cement.

Other obvious applications of the method in wells have been suggested, such as the detection of radioactive acidizing agents, plugging agents, gels and so on.

●

Radial Filtration of Drilling Muds

By MILTON WILLIAMS
Humble Oil & Refining Co.

It is generally recognized that fluid is lost from rotary drilling muds to permeable strata during normal drilling operations. That this fluid is the filtrate from the mud rather than the mud itself, has been shown. The presence of this filtrate in oil or gas-bearing strata is undesirable and harmful for various known reasons. The paper outlines studies and work done to determine the factors causing infiltration with a view to suggesting remedial measures.

Since the dimensions of hole and rate of mud circulation are usually fixed by drilling conditions, variation of these to reduce filtration is impractical. Mud control obviously is the solution. While each mud presents a different problem with regard to securing optimum filtration properties, certain generalities can be stated: (1) That dispersing agents reduce filtration, while coagulating agents increase filtration; and (2) that the predominance of particles of colloidal dimensions ordinarily is conducive to low filtration rates.

●

Flow of Gas-Liquid Mixtures Through Consolidated Sand

By HOLBROOK G. BOTSET
Gulf Research & Development Co.

Experiments performed in the laboratory of the Gulf Research & Development Co. on the flow of gas-liquid mixtures through unconsolidated sands have been described and discussed in an earlier paper. Since the sands that constitute petroleum reservoirs are largely consolidated, although of widely varying degrees of consolidation, it was considered desirable to extend experiments to consolidated sands. The following conclusions were drawn from experiments on consolidated sand:

1. The mechanism of approach to equilibrium saturation is very little affected by the consolidation of the sand.

2. The equilibrium saturation is probably dependent upon the cementation and grain-size distribution, but it may easily be determined on a small core sample.

3. The cementation and the grain-size distribution of the sand are also important in their influence on the permeability-saturation relation. For quantitatively applicable results these relations should be determined on the actual sand in question. The experiments reported herein on Nichols buff sandstone have served to point out certain general trends and tendencies and to enable us to obtain a broad general picture of the significance of cementation and grain-size distribution in modifying the permeability-saturation relations of unconsolidated sand.

4. The ultimate recovery from a consolidated sand will in general be less than from an unconsolidated sand of the same permeability, the difference in recovery depending upon the grain-size distribution and the degree of cementation.

5. Assuming a uniform sand with no water drive or structure present, the final saturation, at the conclusion of the period of natural production, is essentially uniform throughout the sand body.

6. Surface and interfacial tension as well as viscosity must be relatively unimportant (at least over a moderate range of variation) since results of experiments on the large core with water and carbon dioxide agree with those obtained on a small core with natural gas and oil.

The experiments described above have sufficed to show the nature and magnitude of deviations from the permeability-saturation relations for unconsolidated sands, to be expected as a result of consolidation. Furthermore, they indicate that the methods of analysis developed and general conclusions drawn for unconsolidated sands will, with suitable minor adjustments dependent upon the characteristics of the particular sand in question, be equally applicable to consolidated sands. Since these minor adjustments are dependent upon the nature of the individual sand, any attempt to evaluate in detail the effects of such features as degree of cementation or grain-size distribution will involve an extensive program of experiments on a number of different sandstones. Such experiments should produce results of value to the petroleum industry and it is to be hoped that some organization will find it possible to perform them.

●

Dispersion of Clays and Shales by Fluid Motion

By ALLEN D. GARRISON, K. C. TEN BRINK, and P. B. ELKIN
Rice Institute

This paper presented the results of an investigation of certain clay and shale suspensions having viscosities that are materially influenced by fluid motion, and discussed the bearing of these results upon the choice of policy in the control of drilling fluids. An instrument adapted to measure the viscosity of plastic suspensions during continuous uniform motion at a variety of speeds was used for the investigation. Design and characteristics of this instrument were described in another paper by the same authors at the meeting. Investigations indicated that increase in viscosity of fluids is dependent upon various factors, namely, the time the clay has been suspended in the water (age of suspension); the concentration of the suspension; the pH+, the nature of the metallic ions associated with the clay, and the presence of certain deflocculating agents. During normal drilling operations colloidal dispersion and hydration of the natural clays and shales is a factor. Accumulation of solids during drilling is closely related to this increased dispersion.

●

Mud Analysis for Determining Penetration of Petroleum-Bearing Formations in a Well Bore

By A. L. SMITH
Mid-Continent Supply Co.

Principles of two types of instruments being used to analyze drilling mud to determine when an oil or gas-bearing formation has been penetrated are defined. The method used in detecting the presence of gas in drilling mud utilizes a combination of the principles of combustion. The instrument described records the percentage of gas by volume carried in the mud. Depth of gas indications are determined by figuring the time lag from the pump displacement of the well bore, the time being figured backward against the rate of penetration time. Another method used when testing a change in formation is to circulate for a given time after drilling several feet into the new formation. The overall length of the drill stem in the well bore is used as the depth measurement.

Another instrument, the fluoroscope, is used for analysis of mud samples to determine the presence of oil. Mud samples observed under the rays of this instrument which functions in a light band of 2,400 to 4,250 A units clearly shows the presence of oil. It is particularly high in its output of radiations below 3,100 A units. This high-band range is required for comprehensive and accurate fluorescent observations. Mineral fluorescence is easily detected from oil fluorescence because it does not have a radiation effect.

●

Magnesium Alloys for Oil-Well Casing

By J. D. ADKINSON and P. E. FITZGERALD
Dowell, Inc.

Through the development of a special magnesium alloy it now is possible for an operator to make up a flow string of casing with sections of this alloy metal to be placed opposite pay levels desired to be tested. By use of hydrochloric acid that section of pipe opposite any desired pay level can be dissolved, leaving a clear section of sand exposed for production.

This is another means of permitting an operator to make successive completions in different sands from bottom up, using the same flow string. A cement plug within the casing just below the section of alloy metal to be dissolved is set prior to the use of the acid.

●

Phase Diagram of a Mixture of Natural Gas and Natural Gasoline Near the Critical Conditions

By D. L. KATZ, D. J. VINK, and R. A. DAVID
University of Michigan

This paper relates how a phase diagram showing boundary curve and quantity of liquid in the two-phase region was determined for a mixture of natural gas and natural gasoline in the region of its critical conditions. The temperatures and pressures of phase measurements were in the range of 85° F. to 212° F. and 1,300 to 2,600 lb. per sq. in., respectively, with the critical conditions at 169.5° F. and 2,615 lb. per sq. in. abs. Color phenomena were observed in the region of the boundary curve from 102° F. to 192° F. Approximate densities of the single-phase and two-phase regions and analysis of the system are included.

Boundary curves between the single-phase and the two-phase regions have been determined for several binary mixtures containing hydrocarbons. These investigators did not report the relative amounts of liquid and vapor within the two-phase region. The equilibrium values obtained from the dew-point and bubble-point data can be used to compute the lines showing percentage of liquid on the pressure-temperature-phase diagram but the positions of the lines near the critical temperature and pressure are uncertain. Relative amounts of vapor and liquid were obtained for a gasoline and a naphtha within the two-phase area but not in the region of the critical temperature and pressure. The bubble-point and dew-point lines, as well as the percentage liquid lines within the two-phase region, were determined by visual observations in glass apparatus.

METALS in DRILLING

By W. L. NELSON

PART 6—ENGINE AND MACHINE CASTINGS

IRON castings have, in the past, been dismissed from serious consideration by many engineers because ordinary irons have a relatively low strength, are somewhat brittle and are not always uniform in physical properties and composition. Such an approach is not entirely wise because cast iron does occupy a position of importance by its cheapness and the ease with which special shapes can be attained, and because foundry practice has been improved in recent years until the properties of cast iron can be relied upon or graded according to A.S.T.M. requirements. For attaining high strength, alloy elements may be added—and these high-strength irons (50,000 to 80,000 lb. per sq. in.) have greatly widened the applications of cast iron.

The applications of cast iron or alloy iron in the petroleum industry are not spectacular when compared with some of the highly alloyed steels, but a vast number of applications such as engine castings, machine frames, gears, cylinder heads, cylinder liners, exhaust manifolds, pistons, piston rings, compressor bodies, clutch plates, crankshafts, brake and hoist drums, flywheels, etc., are faithfully served by the irons. Some of these services and commonly recommended compositions are given in the accompanying table. The A.S.T.M. and most manufacturers prefer to grade irons on a basis of physical properties rather than composition, and hence the grading system of the A.S.T.M. is given here.

For particularly high pressures or temperatures, steel castings are used in place of iron castings, but in most instances the high-strength irons (Classes 40-60) have been able to hold their own in this competition. The present article is confined almost entirely to iron castings in order to emphasize their important position.

In outlining the metallic materials that are used in all phases of the petroleum industry, plain and alloy castings play an important part because of their relative cheapness and the ease with which complicated shapes can be attained. This article is a part of a series covering the utilization of metals in drilling and going forward to the use of metals throughout the entire industry. The recommendations given herein are those of prominent authorities and iron manufacturers.

A.S.T.M. Classes

Specification A 48-36 groups cast irons into seven groups ranging in tensile strength from 20,000 to 60,000 lb. per sq. in. as shown in the following tabulation:

Class No.	Minimum tensile strength
20	20,000
25	25,000
30	30,000
35	35,000
40	40,000
50	50,000
60	60,000

Transverse tests are also specified and sizes of specimens for testing, but the above tabulation is sufficient for purposes of classification. Irons that are stronger than Class 60 are not uncommon (even up to 85,000-lb. tensile strength) but the Brinell hardness is seldom less than 300 for these extreme-strength irons and hence it is necessary to sacrifice some machinability in order to gain such strength. The recent success in making high-strength irons, puts these irons into direct competition with steel because such irons are fully as strong as mild carbon steel, they have greater hardness and wear resistance, and they can be shaped cheaply by casting.

Ordinary gray or machinery iron consists essentially of a matrix or bulk of material that is similar to low and medium carbon steels except that graphite flakes are dispersed throughout the material. Upon rapid cooling (or thin sections) the graphite flakes fail to be completely separated and thus the amount of carbon that is combined with the iron is increased and the casting becomes very brittle.

The effect of the various alloy elements[36] can be measured, as just mentioned, by their effect on the precipitation of graphite flakes. At one extreme, chromium and vanadium tend to keep the carbon in combination with iron, giving stronger irons but ones that are very brittle, whereas at the other extreme, silicon and aluminum tend to cause almost complete precipitation of carbon as graphite. The effects of elements in this respect are given in the following tabulation which is only approximate because only minute amounts of some of the elements are employed.

	Percentages for pearlitic irons	Graphite precipitation
Chromium	.15-1.0	Restrains (or chills)
Vanadium	.15-0.5	Restrains
Manganese	.3 -1.25	Mildly restrains
Molybdenum	.3 -1.0	Mildly restrains
Copper	.5 -2.0	Mildly induces
Zirconium	.1 -0.3	Induces
Titanium	.05-0.1	Induces
Nickel	.1 -3.0	Induces
Aluminum	....	Strongly induces
Silicon	.4 -2.8	Strongly induces
Carbon	2.4 -3.6	Strongly induces

In addition to this effect, most of the elements tend to refine the grain and graphite structure—some very strongly, as titanium and molybdenum. Most of the elements tend to stabilize the combined carbon so that the iron is more stable at high temperatures—and at high percentages of alloy element the carbon may become so firmly held in the matrix as to cause the iron to be harder (and more brittle) than tool steels.

In general, the plain carbon irons can only qualify for Classes 20-25 except in rare instances. Nickel when used in percentages less than 2 per cent will result in Classes 25-30 irons, and with 0.25 to 0.6 per cent of chromium as well as nickel, the irons of Classes 35-40 may be expected. If molybdenum is used in percentages of 0.2 to 1.0 with the above elements, irons of Classes 40-60 may be made of even greater strength if machining is unnecessary. Even 0.1 per cent of vanadium with other elements greatly increases the strength (Classes 50-60) but the irons are somewhat hard. It should be borne in mind that the control of the foundry operations is of great importance, and that therefore some foundries can make a Class 50 iron, whereas another foundry working with the same analysis of iron can make only Class 40 iron.

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IRON ALLOY ENGINE CASTINGS

Service—	S.A.E. No.	Approximate composition, per cent— C	Mn	Si	Cr	Ni	Mo	Va	Properties— A.S.T.M. Class	T.S.	Brinell	Per cent steel in charge	Reference
Diesel gears	Alloy irons	3.2	.7	1.6	.4	1.75	.6	....	50	56,700	269	....	23
Cylinder heads	Alloy irons	3.3	.55	2.1	.45	1.25	....	....	35	38,000	220	15-20	10
Exhaust manifolds	Alloy irons	3.5	.65	1.8	.75	2.0	....	....	35	36,000	200	0-20 Annealed	10
Diesel cylinder heads	Alloy irons	3.0	....	2.1	....	....	.5	.1	60	50,000-65,000	229-255	....	22
Diesel cylinder heads	Alloy irons	3.2	.8	2.0	.6	....	1.0	....	..	.....	341	....	23
Diesel cylinder heads	Alloy irons	3.6	.85	1.6	.4	....	.9	....	..	.....	277	....	23
Diesel cylinder heads	Alloy irons	3.1	.85	1.8	....	1.25	.7	.1	60	61,000	302	....	23
Heavy cylinder liners	Alloy irons	3.1	.8	1.0	....	1.0	....	....	40	40,000	220	30-60	10
Light cylinder liners	Alloy irons	3.25	.55	2.0	.5	1.75	....	....	35	36,000	220	20-40	10
Liners (heat treated)	Alloy irons	3.1	.6	2.1	....	.35	.3	....	50	50,000	240	....	23
Diesel cylinder liners	Alloy irons	2.9	.85	2.1	.4	.45	.85	....	50	51,000	269	....	23
Diesel cylinder liners	Alloy irons	3.1	.85	2.1	.6	....	1.05	....	50	52,700	277	....	23
Diesel pistons	Alloy irons	3.2	.7	2.0	.55	....	.9	....	50	53,000	293	....	23
Diesel pistons	Alloy irons	2.55	.7	1.6	....	1.25	.7	.12	60	67,500	248	....	23
Diesel pistons	Alloy irons	2.9	....	1.7	....	1.5	.6	.1	60	50,000-65,000	229-255	....	22
Diesel pistons	Alloy irons	2.9	....	1.9	....	....	.65	.1	60	50,000-65,000	229-255	....	22
Light pistons	Alloy irons	3.4	.65	2.5	....	1.0	....	....	30	32,000	180	15-20	10
Heavy pistons	Alloy irons	3.2	.65	1.1	....	1.25	....	....	35	36,000	220	20-60	10
Piston rings	Alloy irons	3-3.3	.55-.85	1.1-1.5	....	1.25	....	....	35	35,000-40,000	200-220	15-70	10
Clutch plates	Alloy irons	3.3	.65	2.1	.4	1.5	....	....	35	35,000	220	15-25	10
Clutch plates	Alloy irons	3.1	....	2.0	.35	....	....	.1	60	50,000-65,000	229-255	....	22
Clutch plates	Hadfield manganese steel	1.1	12.5	0.6	....	....	....	....	..	120,000	*200	....	34
Diesel crankshaft	Hadfield manganese steel	2.6	.95	2.5	....	1.15	1.1	....	..	78,360	302	....	23
Brake drums	Hadfield manganese steel	3.2	....	1.85	....	1.25	.75	.15	60	50,000-65,000	229-255	....	22
Brake drums	Hadfield manganese steel	3.2	.75	2.0	.45	2.0	....	....	35	37,000	220	15-25 (Quench & Temper)	10
Crossheads	Cast nickel steel	0.3	.9	....	....	1.5	....	.1	..	105,000 Y.P.	250		22

*Hardens with use or cold work.

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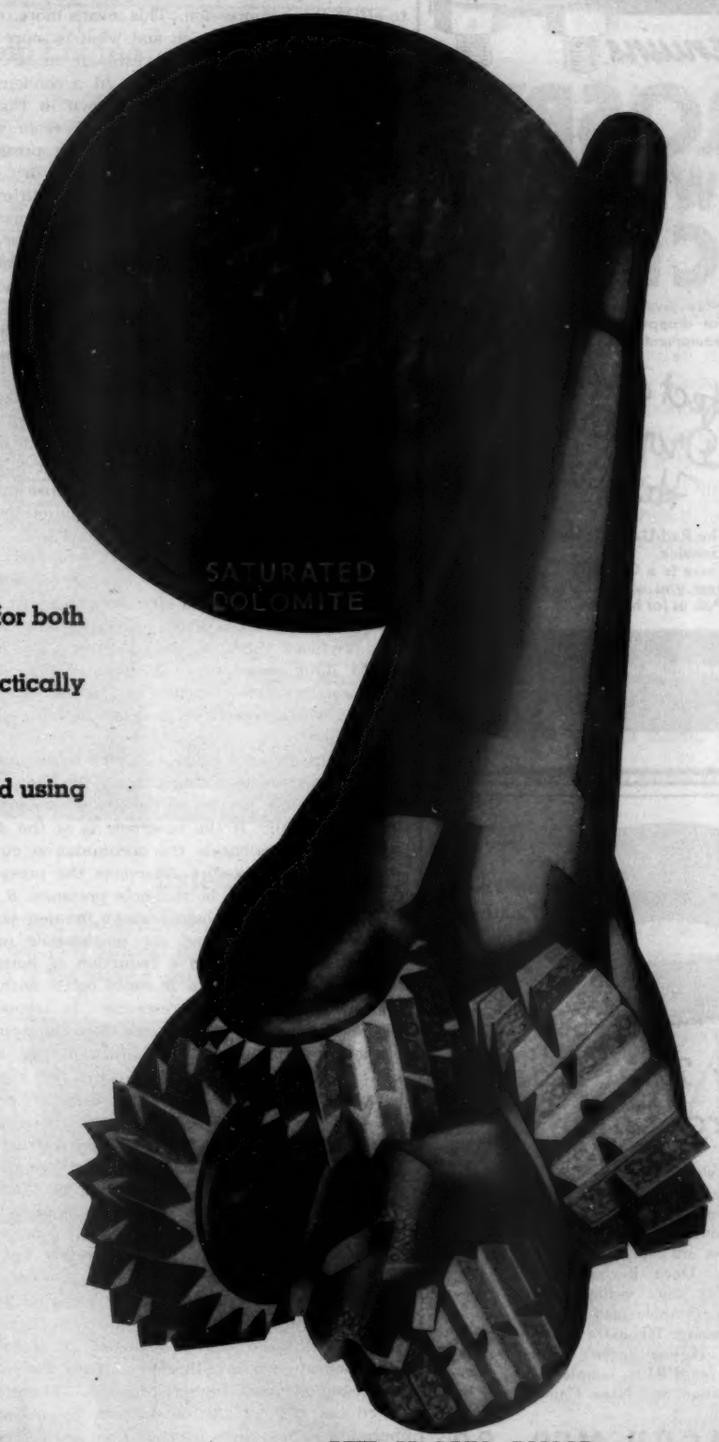

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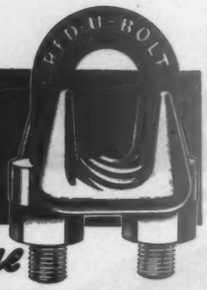

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Phase Retrograde Phenomena

(Continued from Page 50)

as will be pointed out later, requires the compression of the dry gas for injection back into the formation and the lower the suction pressure of the compressor the more power is required to effect this compression. This means more operating cost for compression and what is more important, a higher initial investment in a compressor, which is a major item in a condensate recovery-plant investment. As shown in Fig. 5, the optimum operating pressure is from one-eighth to one-fourth of the bottom-hole pressure of the formation. The weight of the dry column of gas is in most cases sufficient differential to inject the gas back into the formation and overcome line loss, so the compressor-discharge pressure may be assumed to be equal to the bottom-hole pressure. Compression ratios of 4 to 8 are more economical in two stages but this entails other expenses for intermediate-stage scrubbers, coolers, etc., all of which make single-stage compression desirable. To compress in one-stage without too large a compressor investment usually means that recovery must be sacrificed by working at a pressure higher than the optimum.

The importance of recycling or pressure maintenance is brought out by the accumulation curve at reservoir temperature shown in Fig. 5. In other words, the reservoir acts as a separator and as the pressure decreases the liquid represented by the ordinate of the graph condenses in the reservoir and the gas phase in equilibrium with it is produced through the well bore. The condensed liquid wets the sand and is thereafter commercially unrecoverable by present means. There is not enough liquid to accumulate in sufficient quantity to be produced like a crude oil. In addition, the gas phase becomes leaner, especially in the heavier components since they constitute the major portion of the liquid condensing in the reservoir. If the reservoir is at the dew point of the condensate the accumulation curve at reservoir temperature intersects the pressure axis of Fig. 5 at the bottom-hole pressure, *B*. If the reservoir is at a pressure above the dew point at reservoir temperature, the bottom-hole pressure would be at *A* and a reduction of bottom-hole pressure from *A* to *B* could occur without any condensation in the reservoir. In terms of the phase diagram, points *A* and *B* would appear in the approximate position shown in Fig. 1 if such a phase diagram were drawn for a condensate mixture. It is also interesting to point out that such phase considerations make possible a negative test of an oil ring down-structure from the condensate. If the bottom-hole pressure is above the dew point as at *A* in Figs. 1 and 5 it is impossible for an oil ring to be in equilibrium with the condensate. If the situation is as at point *B* in Figs. 1 and 5 there is a possibility but no assurance of an oil ring.

High-pressure absorption allows a higher optimum operating pressure as the heavier absorber oil increases the critical pressure of the absorber oil-condensate mixture, thereby shifting the retrograde region to a higher pressure. Therefore, it reduces cost of the compressor by allowing operation at pressures even as high as well-head pressures but the high-pressure absorption equipment cost tends to counteract the saving thus obtained. However, the high-pressure absorption system seems to be open to more possibilities and future development that will some day soon make it the most economical type of operation for condensate production in a majority of cases. Already experimental work has been carried on to encourage this point of view. Many people have been prone to immediately discard high-pressure absorption for condensate recovery without further investigation because of the cost of high-pressure equipment.

Looking back over the entire condensate production problem it is quite evident that much research remains to be done on the phase behavior of condensate mixtures before the day comes that the petroleum engineer can be sure of the best way to operate any given condensate field. Gradually that work is being done, and with cooperation between groups concerned with this problem, and correlation of exchanged information, that day should be near enough to produce the major portion of condensate reserves by equitable methods for the greatest conservation of this valuable natural resource.

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Operating Ideas

Housing for Mud-Pump Engine

In the Ivy field of Shackelford County, West Central Texas, one oil company is using the demountable housing shown here on its 140-hp. butane engine driving the mud pump. The housing is designed to fit around the oversize radiator, which is left entirely exposed to the air for better cooling. Sliding doors are placed on each side so that they may be left open or closed, as the weather requires. The rear end of the housing is left entirely open, for better cooling, but by heading the housing into the direction from which most rains come the engine is not overly exposed.

Reel for Swabbing Line

The reel shown here was fabricated by one drilling contractor operating in the Vacuum field of New Mexico for holding the swabbing line while it is not in use. (The line was being spliced when this picture was taken.) When the well is to be swabbed in, the reel is placed on the derrick floor, either in front

or behind the rotary table, and chain driven from the draw works. Once the line is balanced, it has been found possible to make very good spooling time in swabbing. The reel is equipped with a hand brake, using a brake shoe of light steel lined with an old piece of belting. Bearing lubrication is accomplished through usual grease sockets.

NEXT WEEK

Three pages of Operating Ideas, gathered from Illinois fields. A feature of the Illinois Basin Number.

Cleat for Holding Cat Line

On many drilling rigs there is no place where a cleat can be attached for holding the cat line when it is not in use. This Illinois crew solved the problem by bolting a rounded 2 by 4-in. timber to the turnbuckle which holds the head board on the hoist in place. Thus, snubbing the cat line is easy.

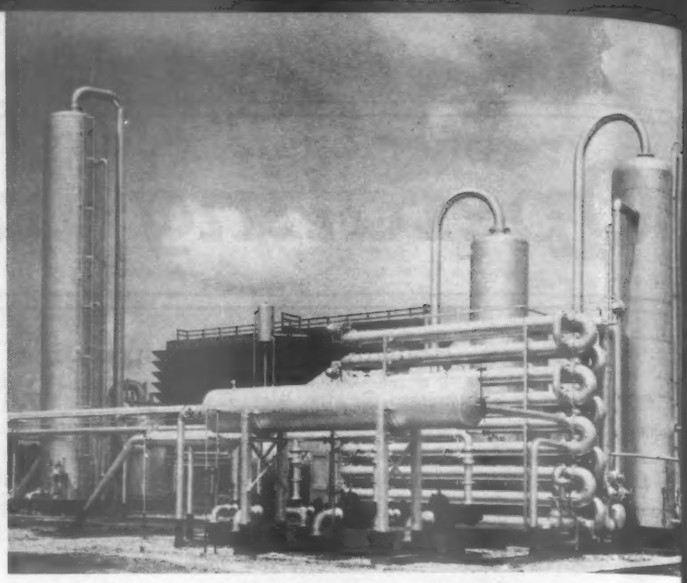
Extension Handle for Pumping Unit

By bringing the brake lever from behind the gear-reduction unit as it is located on most units, out to a bracket mounted on the well-head side of the jack post, one company provides control of the unit by one man standing beside the polish rod; this permits him to spot the

rod where desired for any maintenance work which may be indicated. The end of the lever is bent at a 90° angle to permit a down thrust to operate it; it is forked or split in a manner similar to many brakes on drilling rigs, and can be loaded with weights. Simply by removing the pivot bolt, the entire brake assembly can be swung backward over the gear reduction unit when the well is to be serviced, thus leaving the well head clear of obstruction.

Warren Builds New Gasoline Plant in Texas

By H. W. HARTS
General Manager, Warren Petroleum Corp.



General view of absorption and distillation equipment in Warren Petroleum Corp.'s new gasoline plant in the Fairbanks field, located near Houston, Tex.

IN the latter part of March 1939, the Warren Petroleum Corp. obtained contracts on the natural gas being processed from the Fairbanks pool in Harris County, Texas. This gas was being produced from about 250 wells and the company immediately made plans for a natural-gasoline plant in that area. Through excellent cooperation with the various contractors and supply companies, the plant was put on stream on May 29, 1939, manufacturing 10,000 gal. of natural gasoline and 4,000 gal. of commercial butane daily.

Due to the fact that high-pressure commercial gas was to be processed at a later date, in addition to the natural or casing-head gas, extremely dry mineral-seal oil was necessary for processing. High-pressure boilers were chosen, therefore, and these keep the temperatures sufficiently high to prevent any accumulation of moisture in the circulating oil. Pressures used are in excess of 250 lb. and the distillation temperature approaches 400° F. The boilers are entirely on a closed cycle necessitating practically no makeup. The advantages offered by this boiler makeup are that frequent cleaning is not necessary and no water treatment for the prevention of scale has to be used.

The entire plant was designed with the idea of doubling its size at such time as conditions warrant. This enlargement can be accomplished at any time without shutting the plant down. The field operators in this area desired to carry pressures of 30 lb. on their oil and gas separators so no compressors were installed. However, when these pressures can be reduced, compressors will be installed and connected. Valves were left for this purpose. At the present time one 100-hp. compressor is handling all of the uncondensed vapors.

Butane Recovery

The plant was designed for 75 per cent butane extraction without refrigeration. This could be increased considerably should it become economically practical to extract this additional butane. Currently, butane and propane are cut in the proportions desired, the relationship being determined by the season of the year or the purpose for which these hydrocarbons are to be used. Unusually compact and efficient loading facilities for supplying trucks and also for the addition of an odorant as called for by Texas law have been provided.

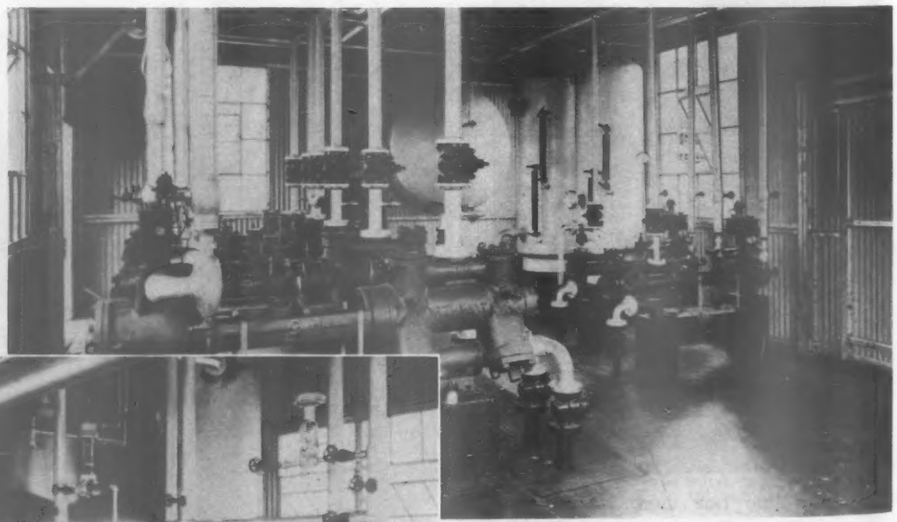
Water-Cooling System

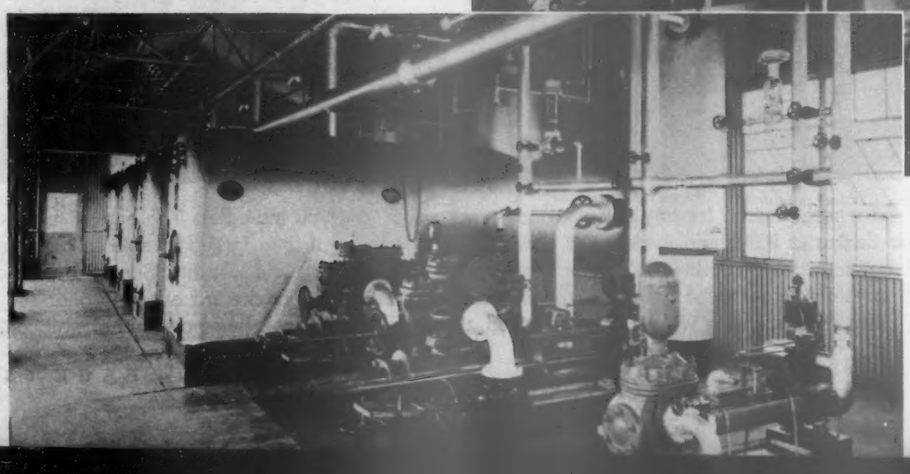
The circulation over the cooling tower was accomplished by the drilling of a 24-in. hole and jetting the water through one 12-in. line under low pressure over the cooling tower. In this way 2,500 g.p.m. are circulated. This cooling system provides for two headers, one over the top of the tower for cooling of the cold coils such as the final gasoline condensers and the other over the collecting pan for the hot coils such as the reflux condenser sections. It has been found that this division materially increases the efficiency of the cooling tower.

Pumping Facilities

One building contains all the pumps serving the plant except those used for oil circulation. The compactness of the arrangement still offers sufficient room for easy repairs. The power required for the circulation of the mineral-seal oil is generated in low-pressure turbines. A gas pressure of 25 lb. is sufficient to maintain the maximum circulation of 700 g.p.m.

The mineral-seal oil is pressured from the still through the heat exchangers, which contain 8,400 sq. ft. of surface, into the lean-oil surge tank. This surge tank is kept full at all times and serves merely to keep the lean-oil circulating pump continually loaded. The level in the still is controlled by the addition of mineral-seal oil from storage. The oil coolers consist of five bays of atmospheric





Special provisions are made for supplying butane to trucks, as seen in the picture at upper left. The pump room, above, and the high-pressure boilers, left, illustrate additional equipment

Battery of butane and natural-gasoline storage tankage.

coolers containing slightly more than 7,000 sq. ft. of surface. These coolers are divided into sets of two and three so that either set can be shut out at any time desired.

At the present time the plant is processing approximately 17,000,000 cu. ft. of gas daily and this amount is being constantly augmented as drilling progresses in the field and as more wells are put on production. The plant is equipped to make an excellent grade of 26-70 gasoline the year around with an octane rating in excess of 80.

The gasoline production is handled through the terminal of the Warren Petroleum Corp. at Norsworthy and the butane production is sold locally to retail dealers or loaded and shipped in tank cars.

Cost of H_2S Removal From Refinery and Sour Natural Gases

By BASIL STORRS
Gas Engineer, Girdler Corp.

WITH certain sweet-gas fields becoming depleted and others gradually turning sour and with the discovery of sour-gas fields within easy reach of the important markets, the problem of H_2S removal from sour natural gas has, during the past few years, become increasingly important. The removal of this troublesome constituent from refinery gases also has become a major problem in recent years due to the development of new processes for the utilization of the lighter fractions.

The purpose of this article is to present to those who are interested in the purification of either natural or refinery gases certain data which will enable them to estimate with a reasonable degree of accuracy the operating cost of purification by means of one of the best known H_2S removal processes. This is the Girbotol process which is currently being used to purify hydrocarbon gases in 16 operating plants in this country. Six of these plants are for the removal of hydrogen sulfide from refinery gas and 10 are employed to purify and, in most cases, dehydrate natural gas. Several other plants are at present under construction.

These plants are designed for a wide variation in treating conditions. Individual plant volumes vary from 100,000 to 50,000,000 cu. ft. per day, pressures from 30 to 550 lb. per sq. in., temperatures from 50° to 160° F., and H_2S concentrations from 10 to 4,500 grains per 100 cu. ft.. The plants have combined capacity to purify 250,000,000 cu. ft. of gas and recover 40 tons of sulfur daily.

The operating data presented in Table 1 cover four typical Girbotol plant installations. The plants selected are representative of the different types of treating conditions encountered.

Plant A is installed in a large oil refinery for the purpose of removing H_2S from stabilizer gas. Under normal conditions the gas is delivered substantially above its dew point. This plant was designed to treat 5,000,000 cu. ft. per day of gas at 100 lb. per. sq. in. gage pressure and 100° F. temperature, having a hydrogen sulfide content of 5 per cent which was to be reduced to below 30 grains per 100 cu. ft. In this plant the gas rate has approached 6,000,000 cu. ft. per day and the hydrogen sulfide content of the inlet gas over 4,500 grains per 100 cu. ft. without exceeding the guaranteed maximum concentration of hydrogen sulfide in the exit gas or utility consumptions. The mercaptans in the exit gas are removed by other means.

In Plant B the gas to be treated is stabilizer overhead near its dew point. The gas is heated slightly before entering the absorber and the temperature of the Girbotol solution to the absorber is maintained high enough to prevent condensation of liquid hydrocarbons in the tower. The plant was designed to treat 6,700,000 cu. ft. per day of gas containing 300 grains hydrogen sulfide per 100 cu. ft. flowing at 250 lb. gage pressure and 160° F. temperature. The hydrogen sulfide content of the exit gas was not to exceed 10 grains per 100 cu. ft. This plant has processed 8,250,000 cu. ft. per day of gas containing approximately 250 grains hydrogen sulfide per 100 cu. ft. flowing at 285 lb. per sq. in. gage and 160° F. and has performed within the degree of purification guaranteed. The data presented were secured during the acceptance test and the plant has continued to operate satisfactorily.

Plant C is a typical illustration of the application of the Girbotol process to natural gas for the removal of hydrogen sulfide only. In this plant the hydrogen sulfide content of the exit gas is consistently negative to the standard lead acetate paper test. The data presented were taken from a representative daily log sheet which did not include a measure of the steam required for reactivation.

The data tabulated under Plant D were secured from Plant C after it had been converted to effect simultaneous purification and dehydration by the addition of diethylene glycol to the solution. Only minor mechanical changes were necessary consisting principally of adding heat-exchange surface. The plant was not groomed or adjusted to obtain these data—they were secured on the day the writer happened to visit the plant and are representative of normal operating conditions. The solution consisted of 11 per cent monoethanolamine, 72 per cent diethylene glycol and 17 per cent water. If more effective dehydration had been desired this result could have been accomplished by merely increasing the concentration of glycol in the solution. The purification being obtained at this time was practically complete since 30 volumes of the treated gas were pumped through a mines safety appliance detector before a slight discoloration appeared. This gas was also negative to the standard lead acetate paper test.

A recent compilation of operating records from another plant which purifies and dehydrates natural gas shows a total overall makeup of 0.13 lb. of monoethanolamine and 0.30 lb. of diethylene glycol per million cubic feet of gas treated. Thus, the reagent makeup amounts to approximately 7 cents per million cubic feet.

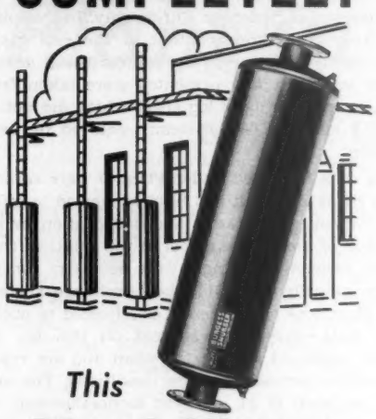
The total cost of purifying natural and refinery gas varies with its hydrogen sulfide content and conditions of treatment. The total treating cost ranges from less than 0.5 cent per 1,000 cu. ft. for natural gas with low hydrogen sulfide content to 2 cents per 1,000 cu. ft. for refinery gas with unusually high H_2S concentrations. Large amounts of CO_2 in the gas to be treated increase the overall cost because the ethanolamines also absorb some CO_2 when removing H_2S.

TABLE 1—SUMMARY OF TREATING DATA

	A High sulfur refinery gas	B Low sulfur refinery gas near its dew point	C Natural-gas purification	D Natural-gas purification and dehydration
Gas rate, MM.c.f./day	4.59	5.28	8.00	10.55
Gas temperature, °F.	90	155	74	61
Absorber pressure, lb./sq. in.	100	290	400	400
Apparent inlet H_2S content, grains/100 cu. ft.*	2,188	304	163	135
Apparent outlet H_2S content, grains/100 cu. ft.*	80	9	....	....
Actual outlet H_2S content, grains/100 cu. ft.	11	....	0	0
Solution rate, gal/min.	75	21.4	22.5	13.4
Amine content of solution, per cent	†9.5	†13.5	‡5.6	‡11.1
H_2S content of lean solution, grains/gal.	35	16	34	8
H_2S content of rich solution, grains/gal.	910	586	492	847
Steam for reactivation, lb./hour	2,860	606	....	785
Pound of steam per pound of H_2S removed	4.8	6.6	....	9.2
Reboiler steam pressure, lb./sq. in.	7	10	7	37
Reactivator pressure, lb./sq. in.	2	6	1	1
Temperature of solution entering absorber, °F.	88	140	93	78
Temperature of solution leaving absorber, °F.	89	149	82	60
Temperature of solution entering reactivator, °F.	195	206	176	194
Temperature of solution leaving reactivator, °F.	223	232	215	265
Amine makeup, lb./day§	7	15	....	1
Dew point lowering, °F.	....	....	....	35

*Including mercaptans. †Per cent diethanolamine by weight. ‡Per cent monoethanolamine by weight. §Total losses including vaporization, chemical and mechanical, over a measurable period.

It STOPS exhaust noise COMPLETELY



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Diesel Silencer needs NO tuning

Solve exhaust noise problems with this specification: *"Use Burgess Snubbers."* Diesel engineers have found that fuel consumption is not increased. Engine efficiency is not reduced. Exhaust noise is prevented.

Snubs Exhaust Roar

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There is no need for tuning Burgess Snubbers. Mount them anywhere in the exhaust pipe line. They are equally effective on 2 stroke- or 4 stroke-cycle engines. Space requirements are at a minimum. Burgess engineers stand ready to help you with installations.

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Mention should be made of the high degree of purification which can be economically effected by the process. It is demonstrated above in Plants C and D that essentially complete hydrogen sulfide removal can be attained, both in straight hydrogen sulfide removal and combination purification and dehydration plants with moderate solution rates and low utility consumption. This factor has played an important role in the success of the installations, especially in the natural-gas field, where almost complete hydrogen sulfide removal is required.

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Postpone Petroleum Fluid Meter Course at O. U.

NORMAN, Okla., Oct. 14.—Revisions in the original plans for the Petroleum Fluid Meter Course to be held at the University of Oklahoma have made necessary the postponement of the meeting dates until next spring. In the meantime practical tests of various meters in progress and the results of these investigations will be presented at the time of the meeting. These should make the course of special interest to pipe line operators, producers and meter men.

American Welding Society Will Meet in Chicago, October 23-27

Electric and gas-welding problems as applied to all phases of oil-field and plant operations will be discussed before the 4-day meeting of American Welding Society scheduled for October 23 to 27 at Chicago

SAFETY - Sign Indicates Attitude of Workmen

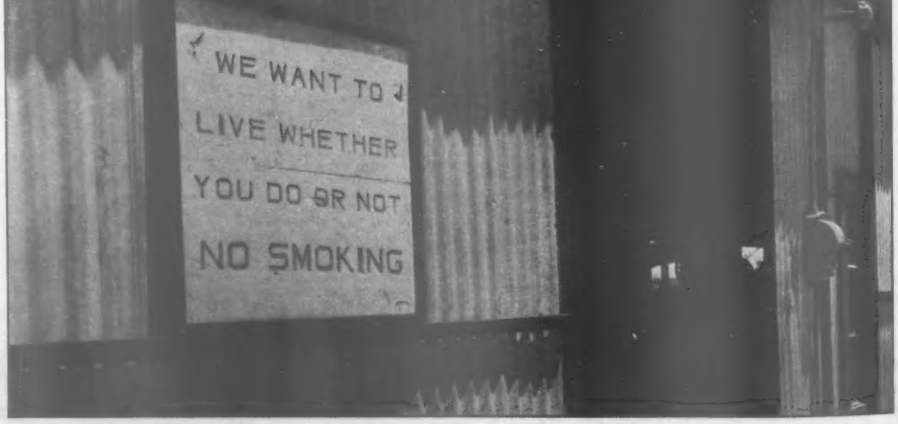
WHILE the reduction in the number of accidents in the petroleum industry has been due to a great extent to the elimination of physical hazards, the mental attitude of the workmen and their desire to avoid injuries has probably been a more important factor.

Injuries are costly to the employer, but they are even more costly to the employe, and he is generally not in position to withstand the losses. While compensation insurance covers the doctor and hospital bill, payments for loss of time are much less than the employe would have earned had he not been injured.

In many occupations in the oil industry the injuries frequently result in loss of life, and here again the penalty for carelessness or misjudgment falls heaviest on the employe and his dependents. The attitude of most operators is epitomized in the sign here shown, which was placed near the entrance to a compressor station.

The station is equipped with every safety device that could help prevent an explosion. Most workers feel that fortune would have to be smiling on them if they were to escape injury in case of fire. Obviously, fireproof wiring and gasproof lights are of little use if visitors are allowed to be careless about smoking in or near the plant.

The workmen leave their matches in a separate building and forego smoking on the job. But these precautions could go for naught if a casual visitor decided to light a match to smoke; therefore the sign with its terse and impressive statement.



QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

S.A.E. Numbers for Lubricating Oils Refer to Viscosity Only

Can you furnish me with the Sligh oxidation numbers of the various S.A.E. grades of lubricating oil?—A. L. B.

The S.A.E. numbers of lubricating oils are intended to serve as approximate indications of the viscosities, without reference to any other property. The Sligh oxidation number is a unit which indicates how the lubricating oil may behave under oxidizing conditions.

The S.A.E. numbers ranging from 20 to 70 place the lubricating oils in six grades. The lowest viscosity oil (No. 20) may range from 120 to 185 at 130° F. and the highest viscosity oil (No. 70) may range from 125 to 150 at 210° F. The Sligh number is derived from a test of the oil under which 10 g. is heated in an atmosphere of oxygen at 392° F. for 2.5 hours. The oxidized oil is then diluted to 100 cc. with naphtha and the resulting precipitate weighed. If a 10-g. sample of oil yields 50 mg. of precipitate, the oil is reported to have a Sligh number of 50. The oxidation of a mineral oil is indicated by darkening in color and the formation of deposits, usually of a gummy nature. The tendency of such deposits to form in a lubricating oil is objectionable, because of the deposit itself and such masses collect dust, together with solid particles which do damage to the lubricated surfaces.

The federal specifications include lubricating oils designated by S.A.E. numbers which include credits for oils of high quality and stipulate under oxidation number—Sligh number shall not exceed 50. One credit is given if it does not exceed 20. The requirements, federal specifications, for S.A.E. lubricating oils were discussed in detail in The Oil and Gas Journal, August 18, 1938, p. 66.

Removal of Hydrogen Sulfide From Petroleum Liquids and Gas

Sodium hydroxide is used in the refining of gasoline to remove hydrogen sulfide and other sulfur compounds. Has there been a similar system developed to remove sulfur compounds from natural gas? Could a simple scrubber be made using a solution of sodium carbonate to absorb the sulfur compounds from a sour gas?—H. B.

Several liquid processes are now available for the purification of gases containing sulfur. These are applicable to natural gas, refinery gas, and manufactured gas, for the removal of objectionable sulfur compounds, which are chiefly hydrogen sulfide and mercaptans. The active reagent applied is a solution of some sodium compound, including the hydroxide, carbonate, arsenate, and phenolate. The substances longest used for these purposes are sodium hydroxide and sodium carbonate solutions. A recently perfected process makes use of tripotassium phosphate.

The scheme for the removal of hydrogen sulfide from gas usually involves the use of two scrubbing towers. These may be the plate, bubble, or packed type. The latter is apparently the most extensively used. The packing may be of any material which is not acted upon by the reagent. The customary practice is to process in two stages, the gas entering near the bottom of a primary absorbing tower, passing upward through the packing while being brought in contact with the solution, which is distributed from sprays at the top. The solution flows to the bottom and then is pumped to a heater to be regenerated, cooled, and then returned to the tower to be used again. The gas passes off from the top of the primary absorber to the bottom of the secondary absorber, where it is treated in a similar way to further reduce the hydrogen sulfide content. This solution is also regenerated. The purified gas goes from the top of the secondary scrubber to a dryer for the removal of moisture picked up while passing through the solutions.

These methods have been described in the literature. Just a few are mentioned.

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Indication of Gasoline Content of Gas Versus Plant Yield

What is the reason for the differences obtained between well tests, charcoal method, and absorption plant yields of natural gasoline? The gas from wells operated under same pressure and volumes when processed in the plant give higher yields than the test indicates. Is there any method to predetermine plant yield from well-head inspection?—J. T. M.

There are numerous reasons why any analytical result obtained in the field or in the laboratory may not check with plant operations. The most prominent of these are analytical error and faulty plant conditions.

Activated charcoal, when in proper condition, is a very powerful adsorbent with the result that lighter gases may be held by this substance which cannot be retained under oil-absorption methods. This results in a high test result against a low plant yield. Faulty sampling, charcoal of low adsorbing power, conducting the distillation under too high temperatures with poor condensing, and overlooking other details of the test may be mentioned as reasons for low test results against high plant yields.

There is also the consideration that is given to marketing conditions, the lighter vapors not always being desired are permitted to waste, therefore reducing plant yield as compared with the charcoal-test results.

The question raised here has been discussed many times by the technical committees of the national associations. The authorities agree that certain interpretations may be made from the laboratory test, when properly conducted, which should check with plant operations.

Physical and Chemical Laws and Principles Used in the Petroleum Industry

TIME RATE OF HEAT TRANSFER
Thermal Conductivity

The rate with which heat is transferred by conduction is determined through unit thickness across a standard area for a stated time. It is expressed as calories per second per square centimeter for a thickness of 1 cm. with a temperature difference of 1° C.

If the two opposite sides of a cube of material are at temperatures t_1 and t_2, the heat transfer across the cube of section a and thickness d in a time T will be:

$$Q = K\frac{(t_2 - t_1)aT}{d}$$

In which K is a constant, the specific heat conductivity of the particular substance and shown for Q in calories; t_1 and t_2 are °C.; a is square centimeter; T is seconds; d is centimeters.

Estimates of the Knock Intensity as Related to Determinations

Is it possible for one gasoline to ping more in a car under the same operating conditions than another if both gasolines have the same octane rating? Is it possible for the average driver of an automobile to detect a difference of one octane number merely by car performance?—D. L. H.

Operating under identical conditions, including same type of engine, two gasolines of the same octane rating are expected to give equal performance. Experts on knock rating may vary as much as two octane numbers when examining the same fuel. It appears quite safe to say that the average driver of an automobile could not improve on this record. The precision of knock-rating tests has been discussed in the Technical News Bulletin of the national Bureau of Standards, from which the following extracts are quoted.

"In 1936 the bureau reported an analysis of 2,180 cooperative knock ratings on 99 fuels. Recently the bureau was asked by the Cooperative Fuel Research Committee to analyze data which had accumulated since the earlier analysis. These data comprised 6,386 tests by over 100 laboratories on 136 fuels.

"After examining the data, D. B. Brooks and R. B. Cleaton find that of the 3,493 tests made by the cooperative exchange laboratories in accordance with the A.S.T.M. method, 92.5 per cent of the results deviate from the respective mean values by less than one octane unit as compared with 86.9 per cent in the 1936 analysis. The precision of rating average fuel is now 0.52 octane unit, as compared with the value 0.63 found in the earlier analysis. The maximum precision attainable with present apparatus is estimated to be 0.36 octane unit; support of this estimate is found in the fact that 207 tests by the best two laboratories show a precision of 0.40 octane unit.

"No improvement has been manifested in the past 3 years in the rating of fuels of over 80-octane number. An improvement is noticeable in the case of cracked fuels, although the error of rating them is still one-third larger than for straightrun gasolines.

"Precision of rating by the 1939 C.F.R. research method is close to that for the A.S.T.M. method. whereas the 1932 C.F.R. research method shows two-thirds larger error than the revised version. The current L-3 method is but slightly inferior to the A.S.T.M. method."

Reference: Technical News Bulletin, national Bureau of Standards, No. 269, 1939, p. 90.

Mid-Continent Refinery Crude Runs Show Decline During October

WITH the exception of Kansas, North Louisiana and Oklahoma, estimated daily crude runs to stills in the Mid-Continent area have decreased. Total crude runs for the month of October are reported to be 547,725 bbl., a decrease of 3,105 bbl. compared with August, and 16,400 bbl. over October of last year.

Oklahoma

Estimated daily crude runs for Oklahoma total 155,595 bbl., a slight increase over last month. Most refineries are maintaining schedules set in August.

Kansas

Crude-run schedules for Kansas are unchanged generally and the total of 127,975 bbl. compared with 127,800 bbl. in August shows an increase of 175 bbl. daily. The Roper refinery at Parsons is again in operation after being shut down for several months and is running 450 bbl. of crude daily.

East Texas

Refineries in the East Texas area have reduced daily crude runs from 51,000 bbl. in August to 48,100 bbl. during October. Two East Texas refining companies changed names during the past month. The Gladewater Refining Co. has taken over the plant of the former Texas Oil Products Co., and the Independent Refining Co. is operating the plant formerly owned by the Tyreco Refining Co.

North Louisiana

Crude-run schedules set in August are to be maintained during October, in the North Louisiana area, with the exception of the Arkansas Fuel Oil Co. plant at Bossier City, which has increased its daily runs from 18,000 bbl. in August to 20,000 in October. Total crude run for the month will be 47,100 bbl. daily, compared with 45,100 bbl. last month.

At an auction sale in Shreveport last month, the properties of the Atlas Pipe Line Corp. were offered for auction. No bids were made for the refinery, cracking and polymerization facilities, the pipe-line system, office building or other auxiliary company properties. The company has been reorganized under the Bankruptcy Act, and is expected to continue in operation under the supervision of a trustee, in place of the receiver who was in charge prior to the attempted auction sale. Atlas has regained pipe-line connections in the local Shreveport field. The Texas Co., operating its Shreveport refinery during a few weeks each autumn, will remain in operation there during most of October, filling fuel-oil contracts.

Mid-Continent Crude Runs

Average Daily Barrels

(Advance estimate compiled by The Oil and Gas Journal)

	1937	1938	1939
January	531,535	529,710	503,405
February	541,790	507,985	494,910
March	533,875	491,935	497,180
April	558,385	532,120	523,535
May	572,855	527,315	534,535
June	593,625	540,005	541,090
July	605,640	557,520	550,755
August	624,475	554,810	556,095
September	625,485	555,695	550,830
October	619,210	531,325	547,725
November	592,170	524,035	.....
December	544,040	503,530	.....

Operations by Refinery Districts

Daily crude runs

	Oct.	Sept.	Decr.
Arkansas	27,900	28,230	330
East Texas	48,100	51,000	2,900
Kansas	127,975	127,800	*175
N. Central Texas	37,255	38,580	1,325
North Louisiana	47,100	45,100	*2,000
Oklahoma	155,595	155,520	*75
Southwest Texas	18,100	18,100	.....
W. Texas Panhandle	85,700	86,500	800
Total	547,725	550,830	3,105

*Increase.

North Central Texas

Estimated daily crude runs for the North Central Texas area show a slight decline in October. Total crude runs for the month are 37,255 bbl., compared with 38,580 bbl. during August.

West Texas and Panhandle

The Phillips Petroleum Co. at Borger; the Panhandle Refining Co., Kings Mill; and the Howard County Refining Co., Big Spring, have reduced crude runs for the month of October. Motor Fuels Corp., Levelland, and the Mountray Oil Co. refinery at Hawley have increased daily crude runs. Total daily crude runs for the month are estimated at 85,700 bbl. compared with 86,500 bbl. for last month.

Southwest Texas

Crude runs to stills in the Southwest Texas district remain at the 18,100-bbl. mark during October, reporting no change over last month.

Estimated Daily Average Mid-Continent Refinery Crude Runs for October

OKLAHOMA

Company and location—	Daily capacity	Av. dly. runs Oct.	Av. dly. runs Sept.
Anderson-Prichard Ref. Corp., Cyril	8,000	6,500	6,500
Barnsdall Ref. Corp., Barnsdall	5,000	4,000	4,000
Bell Oil & Gas Co., Granfield	5,000	2,660	2,660
Ben Franklin Ref. Co., Ardmore	4,000	3,500	3,500
Black Gold Ref. Co., Oklahoma City	2,500	1,800	1,800
Champlin Ref. Co., Enid	16,000	15,000	15,000
Cities Service Oil Co., Okmulgee	4,000	(*)	(*)
Cities Service Oil Co., Ponca City	12,000	9,000	9,000
Continental Oil Co., Ponca City	28,000	21,000	21,000
Cosco Oil Co., Wynnewood	2,500	(*)	(*)
Cushing Ref. & Gasoline Co., Cushing	4,200	3,500	4,000
Deep Rock Oil Corp., Cushing	10,000	9,000	9,000
Eason Oil Co., Enid	3,000	(*)	(*)
Johnson Oil Ref. Co., Cleveland	6,000	5,000	5,000
Mid-Continent Pet. Corp., West Tulsa	35,000	21,000	21,000
Ohio Oil Co., Bristow	5,000	2,500	2,500
Omar Ref. Co., Garber	5,000	2,700	2,700
Phillips Pet. Co., Okmulgee	6,000	4,675	4,300
Peppers Gasoline Co., Oklahoma City	500	400	400
Pure Oil Co., Muskogee	9,000	(*)	(*)
Rock Island Ref. Co., Beckett	6,500	6,200	6,000
Sinclair Ref. Co., Sand Springs	6,000	4,500	4,500
Sun Oil Co., Yale	5,000	1,500	1,500
Sunray Oil Co., Allen	7,000	3,660	3,660
Texas Co., West Tulsa	16,000	11,000	11,000
Tide Water Oil Co., Drumright	12,000	12,000	12,000
Wilcox Ref. Division, Bristow	5,000	4,500	4,500
Total	228,200	155,595	155,520

*Shut down.

KANSAS

Company and location—	Daily capacity	Av. dly. runs Oct.	Av. dly. runs Sept.
Anco Ref. Co., Garnett	500	450	450
Barnsdall Ref. Co., Wichita	5,000	4,500	4,500
Bay Pet. Co, McPherson	4,000	3,000	3,000
Chanute Ref. Co., Chanute	1,000	1,000	1,000
Derby Oil Co., Wichita	8,000	6,500	7,500
El Dorado Ref. Co., Eldorado	5,000	4,000	4,500
Falcon Ref. Co., Inc., Great Bend	1,000	1,500	1,200
Globe Oil & Ref. Co., McPherson	15,000	15,000	15,000
Kanotex Ref. Co., Arkansas City	12,000	6,000	6,000
National Ref. Co., Coffeyville	8,000	5,000	5,000
Pet. Products Co., Chanute	1,250	1,750	1,750
Phillips Pet. Co., Kansas City	23,000	15,325	15,700
Roper Pet. Co., Parsons	750	450	(*)
Shallow Water Ref. Co., Scott City	2,500	1,000	1,000
Sinclair Ref. Co., Coffeyville	12,000	8,500	8,500
Sinclair Ref. Co., Argentine	11,000	8,500	8,500
Skelly Oil Co., Eldorado	23,000	20,000	20,000
Socony-Vacuum Oil Co., Inc., Augusta	20,000	15,000	13,000
Standard Oil Co., (Indiana), Neodesha	7,500	7,000	7,000
Vickers Pet. Co., Potwin	4,000	3,500	3,500
Total	164,500	127,975	127,800

*Shut down.

NORTH LOUISIANA

Company and location—	Daily capacity	Av. dly. runs Oct.	Av. dly. runs Sept.
Arkansas Fuel Oil Co., Bossier City	25,000	20,000	18,000
Atlas Pipe Line Co., Shreveport	12,500	6,000	6,000
Bayou State Oil Corp., Hosston	750	600	600
East Texas Ref. Co., Sandra	7,000	(*)	(*)
Pennant Ref. Co., Princeton	750	500	500
Premier Oil Ref. Co. of Texas, Cotton Valley	3,500	2,800	2,800
Rodessa Oil & Ref. Corp., Cedar Grove	12,000	8,500	8,500
Stanolind Oil & Ref. Co., Superior	5,000	2,200	2,200
Texas Co., Shreveport	7,000	6,500	6,500
Total	74,300	47,100	45,100

*Shut down.

ARKANSAS

Company and location—	Daily capacity	Av. dly. runs Oct.	Av. dly. runs Sept.
Berry Asphalt Co., Waterloo	2,000	1,300	1,200
Henry H. Cross, Smackover	6,000	3,300	3,500
Lion Oil Ref. Co., El Dorado	17,000	13,000	13,000

(Continued on Page 82)

FIELD OPERATIONS

Summarizing the Week's Developments

OKLAHOMA—Completions included a pool opener in Carter County, a Cement-field extension well in Caddo County, a gas discovery in McIntosh County, and a deeper pay discovery in the Langston pool, Logan County. A Marshall County wildcat found Viola lime high and showing oil. The Altus pool, Jackson County, was extended ½ mile westward.

KANSAS—Field activity has increased sharply since October 1. Fifty-six new tests in 16 counties were reported in the past week. The Hittle pool, rich Cowley County area, has passed the 200,000-bbl. potential mark. A 90,000,000-cu. ft. gas well was completed in the Cunningham field, Pratt County, the largest to date.

TEXAS—Field extensions and the discovery of new pays were the features of reports from the various Texas divisions, but failure to find important new pools continues. A deep test on the west side of the League City field in Galveston County attempted a blowout at 10,962 ft. The discovery well of the Anchor field in Brazoria County, on its potential production test, flowed 267 bbl. of water-white distillate. The Rincon field in Starr County was extended 1½ miles. Several out-posts to the Wasson-Bennett field in Yoakum County have entered the testing stage. The recently opened Lehn pool in Pecos County was extended ½ mile and the Magnolia Sealy pool in Ward County was given an extension.

LA-ARK-TEX—The fate of the two offsets to the discovery well in the Tinsley pool in Yazoo County, Mississippi, should be known this week. A gas blowout occurred in a wildcat on the south edge of Shreveport, while it was drilling through Nacatoch sand, but the well was controlled. Standard Oil Co. of Louisiana has started two wildcats in Columbia County, Arkansas. In coastal Louisiana the test on La Place prospect, St. John the Baptist Parish, still looks like a probable pool opener, but may be drilled below 10,000 ft. before it begins testing.

MICHIGAN—A firm curb on state production and a good demand for crude oil has stiffened the Michigan crude market. Some operators are asking for a higher allowable; others want the tight curtailment maintained. A 3,000-bbl. well in Free-man-Redding field and a 1,200-bbl. well in Kent County were the best of the week's completions.

ILLINOIS—While new work continues to exceed completions, production of all Illinois fields fell off to 320,100 bbl. with the big Salem field dropping to a little more than 185,000 bbl. per day. The Devonian-lime pool in Sandoval supplied the few big wells completed last week, but these wells do not maintain their flush production as the pays in other pools have done.

CALIFORNIA—A deep test between the North and South Coalinga fields cored the rich Gatchell sand in Section 30-19-16, and strengthened the opinion of those who believe the two pools are on one large structure. The southern limits of Montebello were extended by a 720-bbl. well with no water. A 2,822-bbl. well was completed in the Ten Section field and a 3,800-bbl. well in the Greeley field.

Completions in All Fields

(Week Ending October 14, 1939)

	Oil	Gas	Dry	Total	1939 total comp. to date	1938 total comp. to date
N. Y., Pa., and W. Va.	43	18	4	65	2,540	2,890
Ohio	9	11	7	27	792	779
Indiana	6	0	1	7	238	101
Kentucky	3	18	7	28	543	711
Illinois	58	0	12	70	2,813	1,292
Michigan	15	2	15	32	1,125	703
Kansas	16	0	6	22	1,028	1,277
Oklahoma	16	2	11	29	1,392	1,372
Texas:						
North Central Texas	24	2	15	41	1,854	2,524
West Texas	34	0	5	39	1,476	1,569
Texas Panhandle	5	1	0	6	326	452
East Texas	8	0	0	8	331	1,512
East Central Texas	3	0	5	8	216	282
East Texas Border	2	0	0	2	58	111
Gulf Coast Texas	18	1	2	21	1,051	1,054
Southwest Texas	22	1	12	35	1,764	1,689
Total Texas	116	5	39	160	7,076	9,193
North Louisiana	4	2	2	8	411	512
Gulf Coast Louisiana	20	0	6	26	516	383
Total Louisiana	24	2	8	34	927	895
Arkansas	3	0	2	5	206	192
Montana	4	0	0	4	127	88
Wyoming	0	1	0	1	98	126
Colorado	1	0	0	1	11	10
New Mexico	4	0	0	4	462	447
Utah	0	0	0	0	0	2
California	12	0	6	18	732	1,037
Total United States	330	59	118	507	20,110	21,115
Total previous week	339	38	133	510		
Week ending Oct. 15, 1938	352	46	121	519		

Outstanding Fields—Highlights

(Week Ending October 14, 1939)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
K.M.A.	38	40	5	4,379	1,144	28,388
Wasson-Bennett	10	69	3	3,309	456	17,287
Ector County	5	55	15	18,941	1,871	55,100
Pecos County	3	22	5	765	1,199	37,698
Jones County	4	10	0	0	572	7,300
East Texas	10	21	8	349	26,099	492,848
OKLAHOMA						
St. Louis	5	25	4	711	891	31,300
KANSAS						
Barton County	4	15	0	0	489	14,475
Ellis County	4	16	1	1,166	433	9,925
Rice County	3	20	0	0	1,371	29,925
Russell County	6	24	3	1,818	1,331	26,935
NEW MEXICO						
Lea County	18	53	2	2,230	2,262	102,090
Eddy County	16	59	2	1,260	434	11,050
LA-ARK-TEX						
Cotton Valley, La. (deep)	2	5	2	1,129	144	10,640
Magnolia, Ark.	0	9	0	0	68	15,325
MICHIGAN						
Freeman-Redding	3	16	3	4,560	118	13,261
Kent County	10	47	5	2,560	159	10,330
CALIFORNIA						
Wilmington	5	18	1	777	716	87,250
ILLINOIS						
Salem	8	84	15	1,367	1,351	185,271
Louden	11	63	17	4,068	1,127	65,700
Other basin fields	33	249	26	6,226	1,727	71,129
Old fields	....	.....	....	.....	.....	8,000

Illinois, Indiana and Kentucky

By STAFF CORRESPONDENT

Illinois Production Declines; New Work Showing No Drop

SALEM, Ill., Oct. 16.—The tremendous drain on the southern Illinois producing formations in the past 30 months is beginning to tell. Salt water in quantity appears more often and in larger proportion in new oil wells in various parts of the big area than heretofore, and wells are not showing the big initial production from either the sands or the limes that they did in the past. Salt-water disposal wells are appearing on the records as completions, and wells are being drilled for the purpose of disposing of salt water in the Louden field.

Meanwhile, the big drain on the producing formations continues. In the past week in review production in the state totaled 321,900 bbl. per day, with Salem supplying 185,271 bbl.; Louden, 65,700 bbl.; other basin fields, 71,129 bbl., and the old fields in the southeastern counties, 8,000 bbl.

Seventy wells were completed during the week in all fields, 58 oil wells and 12 dry holes. In Marion County 17 oil wells had 3,014 bbl. initial production, many of the wells having been tested only 3 hours on their first day. Fayette County's 17 new wells produced 4,068 bbl. initially. New wells and initial production in other counties were Clay 3 wells, 1,118 bbl.; Edwards 2 wells, 468 bbl.; Wayne 4 wells, 383 bbl.; Wabash 13 wells, 2,381 bbl.; White 1 well, 210 bbl.; Washington 1 well, 19 bbl. The dry holes were 5 in Marion; 1 each in Clay, Wabash and Washington; 2 in Edwards and 2 in Clinton.

Menhall's No. 2 Robinson, SW NE SE SW Section 4-2n-1e, in the Sandoval field, was flowing 80 bbl. an hour from Devonian lime but was not a completion. Menhall has another near completion in No. 1 Goodman, in NE NW SE Section 8-2n-1e, which was flowing 300 bbl. heads, 17 per cent water.

There were 89 new operations started in the state during the week of which Fayette County had 31, Marion County 24, Wabash County 10, White County 6, the remainder being in Peoria, Jasper, Lawrence, Clay, Wayne, Edwards, Clinton, Jefferson, Monroe and Washington counties.

Following were the completions of the week, the initial production representing 24 hours, unless otherwise stated:

Marion County

In Marion County Ray Brown and others' No. 1 Berner, SE NE SW Section 33-3n-2e, Fredonia lime top at 2,174 ft., total depth 2,186 ft., dry and abandoned.

Kealey's No. 1 Mason, NW SW NW Section 20-3n-1e, Devonian lime at 2,986 ft., total depth 3,100 ft., dry and abandoned; (ownership name corrected).

Texas Co.'s No. 8 Stroup, SE NW SE Section 30-2n-2e, Salem field, shot with 55 qt. at 1,817-72 ft., flowed 147 bbl. in 3 hours, rated a 1,029-bbl. well. I. D. Lain's No. 9 Dempsey, NE NE SW Section 31-2n-2e, shot with 50 qt. at 1,785-1,815 ft., flowed 240 bbl. a day. Texas Co.'s No. 3 Frederick roadway, N½ SE NW SW Section 29-2n-2e, pays at 1,943-45 ft. and 1,950-55 ft., flowed 30 bbl. in 3 hours, rated at 210 bbl. per day. Texas' No. 18 McCollum, SE cor. Section 29-2n-2e, McClosky at 1,920-96 ft., at intervals, flowed 40 bbl. in 3 hours, rated at 321 bbl. per day. Texas' No. 9 Frederich, NE NW NW Section 29-2n-2e, McClosky at 2,014-73 ft., flowed 35 bbl. in 3 hours, rated at 175 bbl. a day. Ohio Oil Co.'s No. 21 M. Young heirs, NW SE NW Section 29-2n-2e, Fredonia pay at 1,990-2,002 ft., acidized with 3,000 gal., pumped 70 bbl. Texas' No. 20 Lee, SW cor. Section 28-2n-2e, McClosky at 1,944-85 ft., flowed 58 bbl. in 3 hours, rated at 406 bbl. per day. Texas' No. 19 N. Lee, N½ SW SW SW Section 28-2n-2e, McClosky pays at 1,933-2,002 ft., at intervals, flowed 35 bbl. in 3 hours, rated at 175 bbl. a day. Texas' No. 11 F. Lee, SE SE SW Section 28-2n-2e, McClosky at 1,992-2,012 ft., acidized with 2,000 gal., flowed 120 bbl. in 3 hours, rated at 840 bbl. a day. Shell Oil Co., Inc.'s No. 9-B Salem State Bank, SE NW SE Section 20-2n-2e, Aux Vases sand at 1,786-1,856 ft., flowed 500 bbl. Texas Co.'s No. 8 Martin, SE SE SE Section 17-2n-2e, McClosky at 2,002-41 ft., pumped 31 bbl. in 3 hours, rated at 217 bbl. a day. Texas' No. 22 Jett, N½ NW SW SE Section 16-2n-2e, McClosky pays at 2,017-3,053 ft., at intervals, pumped 27 bbl. in 3 hours, rated at 189 bbl. a day.

Kingwood Oil Co.'s No. 1 Konrad, NW cor. NE SE Section 8-2n-1e, in the Sandoval area, Devonian lime top at 2,945 ft., total depth 3,055 ft., 447 bbl. in 24 hours with 1,000 bbl. of water, natural flow. Dunn and others' No. 1 Meredith, NW NE NW Section 10-2n-1e, Devonian lime at 3,265 ft., total depth 3,355 ft., dry and abandoned. Menhall and others' No. 4 Benoist, NE cor. NW¼ Section 8-2n-1e, Devonian lime at 2,882 ft., total depth 2,927 ft., flowed 1,200 bbl. in 24 hours.

In the southern part of the Salem field Texas Co.'s No. 3 Meyer, SE NE NE Section 17-1n-2e, McClosky lime at 2,082 ft., total depth 2,120 ft., acidized with 2,000 gal., pumped 14 bbl. of oil and 2 bbl. of water in 24 hours. Texas' No. 4 Fyke, NW NW NE Section 17-1n-2e, Benoist at 1,881-98 ft., pumped 5 bbl. in 3 hours, rated at 105 bbl. a day. Texas' No. 6 Richardson, NE NW SW Section 4-1n-2e, Benoist at 1,807-46 ft., flowed 15 bbl. in 3 hours, rated at 105 bbl. a day. Texas' No. 1 Richardson roadway, NE cor. SE SW Section 4-1n-2e, Ste. Genevieve lime at 1,988-2,092 ft., dry and abandoned. Texas' No. 2 Antioch Church, in Section 5-1n-2e, abandoned location. Ewing and others' No. 1 McMakin, NW SE SW Section 6-2n-3e, a wildcat, dry and abandoned at 2,430 ft.

In Jefferson County Oils, Inc.'s No. 1 Mace, NE SW SW Section 34-3s-3e, dry and abandoned at 3,046 ft.

Fayette County

In Fayette County Nash, Redwine and others' No. 3 Logue, NE SE SE Section 13-7n-2e, total depth 1,559 ft., pumped 8 bbl. per day.

Parrott-South's No. 1 Guffey, NE NW NE Section 1-5n-1e, total depth 1,630 ft., shot with 20 qt., pumped 110 bbl. of oil and 12 bbl. of water, then dropped to 56 bbl. of oil and 4 bbl. of water per day.

In the Louden field Jarvis Brothers' No. 13 Sinclair, W½ SW NW NE Section 29-8n-3e, Cypress sand at 1,407-21 ft., shot with 20 qt., pumped 65 bbl. Jarvis Brothers' No. 14 Sinclair, SE NE NW Section 29-8n-3e, total depth 1,525 ft., shot with 60 qt., pumped 50 bbl. Jarvis Brothers' No. 1 Sinclair, NE NW NE Section 29-8n-3e, an old well deepened from 1,466 ft. to 1,500 ft. and shot with 50 qt., pumped 160 bbl. Jarvis Brothers' No. 4 Sinclair, SE NW NE Section 29-8n-3e, an old well deepened from 1,479 ft. to 1,504 ft., and shot with 40 qt., pumped 200 bbl.

Carter Oil Co.'s No. 5 Dial, NW NE NW Section 33-8n-3e, total depth 1,538 ft., plugged back to 1,460 ft. and shot with 20 qt. at 1,449-52 ft., swabbed 28 bbl. Carter's No. 2 McKay, NE NW SW Section 12-8n-3e, total depth 1,515 ft., shot with 20 qt. at 1,500-06 ft., swabbed 268 bbl. through casing and 75,000 cu. ft. of gas. Carter's No. 2 Boles, SE SW SW Section 21-8n-3e, total depth 1,526 ft., shot with 60 and 20 qt., flowed 150 bbl. of oil and 150,000 cu. ft. of gas. Carter's No. 4 M. E. Hogan, shot with 20 qt. in Bethel sand at 1,477-80 ft., flowed 144 bbl. of oil and 250,000 cu. ft. of gas. Carter's No. 3 Paul Dunaway, SE NE NE Section 29-8n-3e, shot with 50 and 20 qt. at 1,397-1,405 ft., flowed 750 bbl. and 1,250,000 cu. ft. of gas. Carter's No. 7 McClain, NW NE NW Section 4-7n-3e, shot with 30 and 30 qt. at 1,476-1,580 ft., swabbed 512 bbl. per day. Carter's No. 9 Estella Hopper, NW NW SW Section 5-7n-3e, shot with 20 qt. at 1,538-42 ft., swabbed 456 bbl. and 50,000 cu. ft. of gas. Carter's No. 7 N. M. Hopper, SE SE SE Section 6-7n-3e, total depth 1,546 ft., shot with 20 qt., swabbed 196 bbl. Carter's No. 8 N. M. Hopper, NE NE SE Section 6-7n-3e, shot with 30 qt. at 1,556-66 ft. and ripped casing at 1,466-80 ft., swabbed 564 bbl. of oil and 100,000 cu. ft. of gas. Weiler sand supplied 64 bbl. a day and Bethel sand 500 bbl. of the initial output. Carter's No. 5 Quade, NW cor. SW NE SW Section 6-7n-3e, shot with 60 qt. at 1,460-80 ft., swabbed 160 bbl. Jarvis Brothers' No. 9 Yokey, C E½ W½ SE Section 6-7n-3e, total depth 1,486 ft., shot with 60 qt., pumped 200 bbl. Carter's No. 8 Marie Thornton, NW NE NW Section 7-7n-3e, total depth 1,541 ft., shot with 10 and 20 qt., swabbed 144 bbl. Carter's No. 4 Nora Townsend, NE NW NW Section 7-7n-3e, total depth 1,582 ft., shot with 40 qt. at 1,488-1,582 ft., swabbed 188 bbl. Shell Oil Co., Inc.'s No. 12 Fulton, SE NW NW Section 28-7n-3e, shot with 10 qt. at 1,571-77 ft., pumped 103 bbl.

Clay County

Pure Oil Co.'s No. 2 R. C. Hubble A, C W½ SE SE Section 31-3n-8e, Clay County, set 5½-in. casing at 3,043 ft., total depth 3,086 ft., acidized with 5,000 gal., pumped 65 bbl. of oil and 40 bbl. salt water. Pure's No. 1 Campbell B, C W½ NW NE Section 33-2n-8e, pays at 3,006 to 3,101 ft., at intervals, acidized with 5,000 gal., flowed 580 bbl. Godlin and others' No. 2 Riggs, NE SW SE Section 27-2n-8e, salt water broke in at 3,125-29 ft., total depth 3,139 ft., abandoned. Pure Oil Co.'s No. 2 Hubble, C E½ SE SW Section 4-1n-8e, pay at 3,056-65 ft., acidized with 5,000 gal., flowed 473 bbl.

Edwards County

In Edwards County Roach, Voyles & Merrill's No. 2 Albert Lee, NW NE SE Section 11-1s-10e, McClosky lime at 3,365-70 ft., total depth 3,392 ft., dry and abandoned. Olin & Hayes' No. 1 N. Y. C. R. R. B, N½ NE SE SW Section 34-2s-14w, Cypress sand at 2,628-34 ft., pumped 228 bbl. of oil and about 13 bbl. of salt water. McFadden's No. 1 Charles Bump, NE SE SW Section 34-2s-14w, Cypress sand at 2,625-42 ft., pumped 240 bbl. of oil and 15 bbl. of salt water. Longhorn Oil Co.'s No. 1 Kraft, SW NW SW Section 31-2s-14w, dry and abandoned at 3,175 ft., McClosky lime was topped at 3,120 ft.

Wayne County

In Wayne County Robinson and others' No. 9-B Hornick-Murphy, NE SW SW Section 35-2s-8e, pays at 3,382-91 ft., flowed 300 bbl. O. T. Dunlap's No. 1 Vaughn, NE NE SW Section 34-2s-8e, pays at 3,426-32 ft., acidized with 3,000 and 1,000 gal., pumped 76 bbl. of fluid, estimated about 70 per cent salt water. H. H. Weinert's No. 2 Coulter, C W½ NW SE Section 28-2s-7e, Fredonia lime pay at 3,327-37 ft., pumped 8 bbl. of oil and 90 bbl. of salt water. Texas Co.'s No. 2 Boggs, C E½ NW NE Section 8-3s-7e, McClosky at 3,350-56 ft., acidized with 1,000 gal., pumped 52 bbl. of oil and 28 bbl. of water.

Wabash County

In Wabash County Tide Water Associated Oil Co.'s No. 2 LeGier, NW SW NW Section 16-2s-13w, Cypress sand at 2,394-2,415 ft., pumped 175 bbl. Tide Water's No. 2 Elkins, SW SE SE Section 30-2s-13w, Cypress at 2,461-76 ft., pumped 150 bbl. F. Hollandsworth's No. 1 Riggs, SE SE SW Section 9-2s-13w, Cypress sand at 2,444-55½ ft., pumped 125 bbl. Olin & Hayes' No. 4 N. Y. C. R. R., NE cor. SW SW Section 9-2s-13w, pumped 265 bbl. after a 15-qt. shot. Blalock and others' No. 1 Whitaker, NW SW SE Section 8-2s-13w, Cypress sand at 2,442-58 ft., dry and abandoned. Olin & Hayes' No. 5 N. Y. C., NE NE SW Section 9-2s-13w, Cypress at 2,414-35 ft., shot with 15 qt. on bottom, pumped 144 bbl. R. E. Wilson Drilling Co.'s No. 1 Kingery, SW cor. SE NE SW Section 9-2s-13w, Cypress at 2,429-55 ft.,

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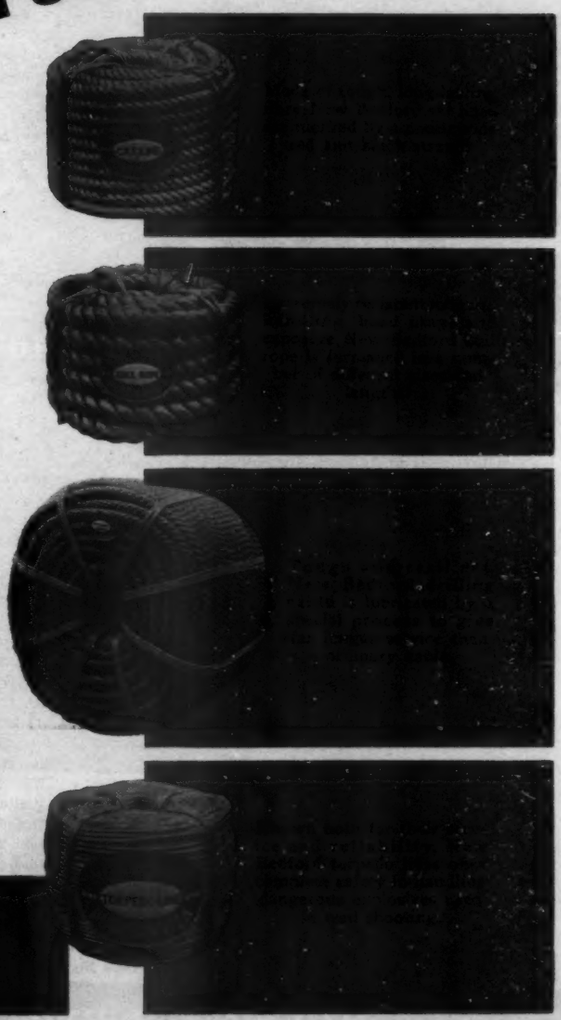

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pumped 150 bbl. Central Refining Co.'s No. 1 Coe and others, NE cor. NW¼ Section 16-2s-13w, Cypress at 2,446-52 ft., pumped 109 bbl. Central Refining Co.'s No. 1 McGlore, NE SE SW Section 9-2s-13w, Cypress sand 2,437-51 ft., shot with 10 qt., pumped 152 bbl. of oil and 5 bbl. of salt water. Doc Dallas' No. 1 Lovelette, S½ NW SE SW Section 9-2s-13w, Cypress at 2,443-48 ft., shot with 10 qt., pumped 200 bbl. J. J. Deaner's No. 1 Williams, SW cor. SE Section 9-2s-13w, Cypress at 2,448-60 ft., shot with 15 qt., pumped 266 bbl. D. & H. Drilling Co.'s No. 3 Bump, NE cor. SW NE SW Section 9-2s-13w, Cypress at 2,421-42½ ft., shot with 20 qt., pumped 250 bbl. Graham's No. 1 Epler, SE cor. NE SW Section 9-2s-13w, Cypress at 2,437-47 ft., pumped 145 bbl. Jack Brown and others' No. 1 Nash, NE SE SW Section 9-2s-13w, Cypress at 2,438-62 ft., shot with 30 qt., pumped 250 bbl.

In White County J. W. Carter and others' No. 1 Johnson, NE SW NE Section 12-4s-10e, Roseclaire lime at 3,109 ft., pays at 3,109-14 ft. and 3,184-93 ft., acidized with 1,500 gal., pumped 210 bbl. of oil and 15 bbl. of water.

In Clinton County J. J. Farrelly and others' No. 1 Bergman B, NW cor. SW NW Section 25-1n-4w, abandoned at 108 ft. Shell Oil Co., Inc.'s No. 1-B Dunbar, SE NW NW Section 11-1n-1w, McClosky lime at 1,593 ft., no showings, dry and abandoned.

In Washington County Comanche Oil Co.'s No. 1 Zgonia, NE NE NE Section 21-3s-1w, St. Louis lime top at 1,800 ft., total depth, dry and abandoned. Shell Oil Co., Inc.'s No. 5 Sharkowski, SW NW NW Section 23-3s-3w, Benoist sand at 1,256-94 ft., shot with 21 qt., pumped 19 bbl.

In Jefferson County Reinhardt and others' No. 1 Inland Steel Co., C S½ SE SE Section 36-4s-1e, St. Louis lime at 3,040 ft., total depth 3,167 ft., dry and abandoned.

In Coles County Harry Miller's location for No. 1 Miller, SE SE NE Section 9-11n-10e, was abandoned at 75 ft.

New Wildcat Operations

In Peoria County Blue Bell Oil Co.'s No. 1 Kyle, NW SW NW Section 17-8n-6e of fourth principal meridian, drilling at 90 ft.

In Jasper County Mammoth Producing & Refining Co.'s No. 1 Johnoff, C E½ NE SE Section 24-5n-9e, derrick up.

In Wabash County Fitzpatrick & Hayes' No. 1 Kinderliter, NE NE NE Section 9-1n-13w, drilling at 2,500 ft., Cypress sand top at 2,377 ft.

In Edwards County Noad & Morrison's No. 1 Brown, NW NE NW Section 15-3s-10e, rig up.

In White County Bishop & Harrington and others' No. 1 Griffin, S½ SE SE SW Section 28-3s-9e, rig up. Ben Nations' No. 1 Stokes, SE NE SE Section 19-4s-8e, rig up. Exchange Oil Co. and Ohio Oil Co.'s No. 1 Rudolph, 30 ft. north of C NE NE Section 14-6s-9e, location.

In Marion County Shell Oil Co., Inc.'s No. 2 Lutz, NW NW SE Section 18-3n-1e, drilling at 855 ft.

In Monroe County Smell Oil Co.'s No. 1 fee, NW SW NW Section 5-1s-10w, moving in machine.

Interesting Drilling Wells

In Livingston County Mitchell & Fradehagen's No. 1 McWilliams, NW NW SE Section 3-30n-6e, the most northerly wildcat in the state, was drilling below 1,505 ft.

In Ford County Nelson, Brown & Erp's No. 1 Stroth, NE SE NW Section 19-24n-7e, underreaming 6-in. casing at 985 ft.

In Henderson County Media Oil Co.'s No. 1 Pendarvis, SW NE NE Section 17-9n-4w of fourth principal meridian, shut down at 1,110 ft.

In Fulton County J. H. Spiker's No. 1 fee, C N½ NE NE Section 3-7n-1e of fourth principal meridian, drilling below 360 ft.

In Pike County West Pike Development Co.'s No. 1 Reinhardt, NW cor. NE NW NE Section 35-4s-7w of fourth principal meridian, drilling at 65 ft.

In Coles County East Oakland Syndicate's No. 1 Temple, SW cor. SE NE Section 36-14n-10e, total depth below 2,000 ft., pulling tubing. H. Miller's No. 1 Blagg, 2,200 ft., Trenton lime top 1,965 ft. H. Miller's No. 1 Blagg, SE SE NE Section 9-11n-10e, drilling at 220 ft.

In Clark County Patmin Producing Co.'s No. 1 Ingersol, NW SW SE Section 29-11n-14w, total depth 1,117 ft., plugged back to 1,058 ft., shut down. W. R. Miller's No. 1 Booth, SE NE NW Section 17-11n-14w, total depth 2,462 ft., will acidize. Trenton Rock Oil Co.'s No. 1 Black, C SE NW Section 14-11n-14w, drilling at 2,175

(Continued on Next Page)

Good Wells in Griffin Pool; Northern Indiana Test Dry

EVANSVILLE, Ind., Oct. 16.—The Griffin pool in Gibson County had four wells completed in the past week averaging about 400 bbl. to the well. Two other wells were in the near-completion stage.

A wildcat in St. Joseph County, not far from Fort Wayne, in the northern part of the state, was dry in the Trenton lime and abandoned.

Following were the completions and the drilling progress of important tests in the state:

Posey County

H. G. Lewis and others' No. 1 Hill, NE NW SE Section 35-3s-14w, Posey County, total depth 3,115 ft., was acidized at 3,106-15 ft. and pumped 82 bbl. of oil the first day and 92 bbl. the second, but was shut in for lack of a pipe-line connection. C. W. McKeehan and others' No. 1 Keck, NW NW NW Section 35-3s-14w, total depth 2,503 ft., set 5-in. casing at 2,487 ft. It flowed 30 bbl. per hour into pits, but was shut in for lack of a pipe-line connection.

John Lindas spudded No. 1 Seifert, NE cor. SE SW Section 19-6s-12w. Sun Oil Co.'s No. 4 Heil, SE SE SE Section 1-7s-12w, was shot with 40 qt. at 1,753-75 ft. and tubing was being run. Roberts Brothers' No. 1 Keck, NW NE NW Section 34-3s-14w, had 750 ft. of oil in the hole from pay at 2,781-97 ft. Superior Oil Co. was testing at a total depth of 2,257 ft. in No. 10 New Harmony National Bank, SW SE SW Section 10-5s-14w. Wilhelmi and others were drilling at 500 ft. in No. 1 Zimmerman, NE SE SW Section 17-7s-14w, (corrected location).

Gibson County

Hollandsworth & Bander completed No. 4 Boone-Cooper, NE SW NE Section 13-3s-14w, in McClosky lime at 2,860-78 ft. It flowed 651 bbl. the first 24 hours. The same firm completed No. 17 Cooper, NW NE NE Section 13-3s-14w, at 2,861-68 ft. It flowed 363 bbl. per day.

Lewis Production Co.'s No. 4 Cooper D, NE SE NW Section 13-3s-14w, completed at 2,116-36 ft., pumped 285 bbl. per day. Joe Bander and others' No. 2 Cooper, NE cor. Section 24-3s-14w, flowed 110 bbl. in 9 hours from Waltersburg sand at 2,078-88 ft., and was completed.

A near completion was Papoose Oil Co.'s No. 1 Cooper B, NE SE SW Section 12-3s-14w, which was shot with 10 qt. at 2,495-2,500 ft., total depth, and later swabbed 5 bbl. of oil per hour. Lewis Production Co.'s No. 3 Cooper D, NE NE NW Section 13-3s-14w, with Ste. Genevieve lime topped at 2,780 ft., had pay at 2,864-72 ft. It flowed an unrecorded quantity of oil into pits and was shut in.

Midwest Development Co.'s No. 3 Erdell, SE SW SW Section 23-2s-9w, was drilling plugs after setting 4¼-in. casing at 1,467 ft., on top of 11 ft. of sand. Same company's No. 1 Bryant, SW NW NE Section 15-2s-9w, was drilling below 850 ft. Continental Oil Co.'s No. 5 Cooper, SW SW SE Section 12-3s-14w, total depth 2,877 ft., was plugged back to 2,155 ft. and pipe perforated at 2,130-44 ft. The well filled up 800 ft. with oil and preparations were being made to put it on the pump. Hollandsworth & Bander's No. 20 Cooper, NW cor. Section 19-3s-13w, topped Cypress sand at 2,507 ft. and was coring. J. F. Amis, Jr.'s No. 5 Cooper-Amis, NW cor. SW NE NE Section 24-3s-14w, topped Cypress sand at 2,500 ft., set 5½-in. casing at 2,498 ft., and was at a total depth of 2,517 ft. Hollandsworth & Bander's No. 20 Cooper, SE NE NW NE Section 24-3s-14w, cored 8 ft. of saturated Waltersburg sand at 2,078-86 ft. Hollandsworth & McCullough's No. 1 Cooper, SE cor. NW SE NE Section 24-3s-14w, was drilling at 2,100 ft. Lewis Production Co.'s No. 3 Cooper C, NW SE NW Section 24-3s-14w, was drilling at 2,000 ft. Hollandsworth & Bander's No. 18 Cooper, SE cor. SW SE Section 12-3s-14w, was in an oil sand at 2,492-2,508 ft. and standard tools were being installed. Hollandsworth & Bander were digging pits for No. 22 Cooper, NE NW NW NW Section 19-3s-13w. Lewis Production Co. had rig up for No. 5 Cooper D, NE NE NW Section 13-3s-13w.

J. E. Amis set 10-in. casing at 135 ft. in No. 3 Cooper, SW cor. NE NW Section 24-3s-13w.

Papoose Oil Co. made a location for No. 2 Cooper B, SE SE SW Section 12-3s-14w. Continental Oil Co.'s No. 5 Bozeman, NW NW NW Section 24-3s-14w, had Cypress sand at 2,481 ft., but penetrated only 2 ft. Casing will be set. D. & H. Drilling Co. was drilling at 600 ft. in No. 1 Sipp, SE NW SE Section 24-3s-9w.

Jack Brown and others' No. 1 Welborne, SE SE NW Section 27-2s-12w, was dry and abandoned at 2,581 ft. Ste. Genevieve lime was topped at 2,466 ft. and water broke in at 2,552-64 ft.

Hulman and others were moving in material for No. 1 Hollis, SE SW NW Section 36-2s-11w. Lane & Grey and others' No. 1 McCarthy, NW SE NW Section 13-2s-11w, was shot with 20 qt. at 1,812-21 ft., total depth 2,200 ft. Cleaning out recovered mud and water and a little oil. Newton Pipe Line Co. made a location in NW SW SE Section 26-1s-10w. Shirley and others were drilling at 150 ft. in No. 1 McRoberts, NE cor. SE NW NE Section 7-1s-9w.

Spencer County

W. S. Tatum's No. 1 Hinkle, SE SW NE Section 17-6s-6w, was dry and abandoned at 2,500 ft. McClosky lime was topped at 1,473 ft. and Osage lime at 2,460 ft.

J. S. Albertson will test Jett sand at 456-62 ft. in No. 1 Ray, SE NE SW Section 11-6s-4w, which had been drilled to 630 ft. Kelly and others' No. 1 Eberhard, NW cor. SW Section 9-6s-4w, was drilling at 110 ft.

Sunshine Oil Co.'s No. 1 Trent, NE cor. SW SE Section 11-5s-6w, was drilling at 1,065 ft. Damron Brothers' No. 2 A. Wright, C SE SE Section 19-7s-6w, drilling at 765 ft.; Kentucky Natural Gas Co.'s No. 1 Houghland, C NE SE Section 19-7s-6w, was drilling at 1,046 ft. Damron Brothers' No. 1 Howard, SW SE SE Section 35-7s-7w, was at a total depth of 1,340 ft., and the crew was running 6-in. casing. R. E. Cope and others' No. 1 Varner, NE NE SW Section 24-6s-5w, total depth 1,061 ft., was plugged back to 1,015 ft., and acidized. It pumped 20 bbl. of oil per day. It was reacidized and water broke in. It was pumping water. Major Oil Co.'s No. 1 Haynes, SE SE NE Section 11-6s-7w, shut down at 1,145 ft.

In Pike County A. J. Walker and others made a location for a McClosky-lime test, No. 1 Colvin, C N½ NW NE Section 30-1s-6w. Murphy Oil Co.'s No. 8 Stewart, Lot 17, Section 26-1n-7w, was drilling at 890 ft.

In Cass County Fred Eastman and others' No. 1 Kistler, NE SE SE Section 11-28n-1w, was making repairs, total depth 80 ft.

In Randolph County E. G. Henderson made a location for No. 1 Ed Warren, SE NE NE NE Section 16-21n-15e. It will be a Trenton-lime test.

In Martin County Norris & Gilmore found McClosky lime at 396 ft. in No. 1 Cramer, SE NW SE Section 3-2n-4w, and were drilling at 400 ft.

In Warrick County Hoosier Drilling Co.'s No. 1 Baum, SW SE NW Section 9-6s-7w, total depth 1,570 ft., was underreaming 6-in. casing at 1,365 ft. It had a hole full of water at 1,564-65 ft.

In Sullivan County Siosi's No. 1 Cushman, NE NE SE Section 18-8n-10w, total depth 610 ft., was undergoing repairs. Niagaran Oil Co. was drilling at 185 ft. in No. 1 Riley, NW NE SW Section 33-8n-10w.

In Owen County W. H. Young and J. C. Ellis' No. 1 Rice, NE NE NW Section 29-11n-3w, had top of the Corniferous limestone at 1,054 ft. and a hole full of water at 1,100 ft. and is shut down at 1,135 ft.

In St. Joseph County, a few miles south of the Michigan State line, K. V. Nilson's No. 1 Kush found Trenton lime top at 1,496 ft., and water, which filled the hole, at 1,635 ft., and was abandoned.

In Huntington County R. L. Meyers shut down drilling at 1,120 ft. with no showing of oil, in No. 1 Cramer, E½ SW NW Section 29-26n-9e.

In Vanderburg County K. R. Bixby's No. 4 Glaser, SE cor. SW SW NW Section 31-5s-11w, was drilling at 1,100 ft.

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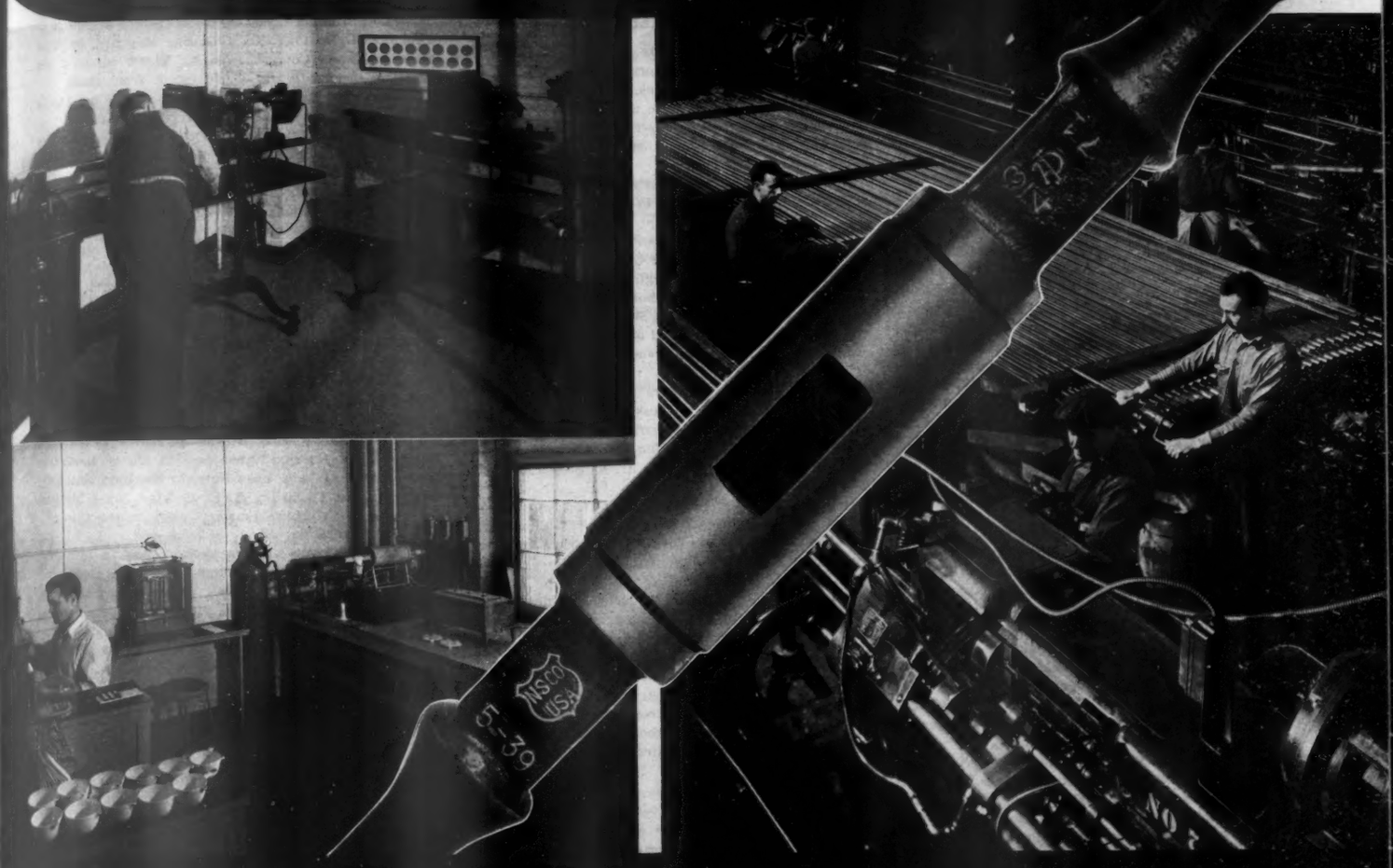

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Grade 81 for heavy loads where corrosion is bad, but sulphides not severe.
Grade 91 for heavy loads under severe corrosive and sulphide conditions.

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ft. F. D. Strickler's No. 1 McFarland, NW NE SW Section 19-10-13w, total depth 1,763 ft., 400 ft. of fluid in the hole, 50 per cent oil, at 1,615 ft., shut down.

In Greene County F. A. Johnson's No. 1 Owens, SW SE SE Section 16-11n-10w, Niagara lime topped at 866 ft., fishing for tools at 1,125 ft.

In Effingham County Frank Searight's No. 1 Wilson, NE NW SE Section 31-6n-5e, total depth 1,200 ft., recementing 10¾-in. casing at 123 ft.

In Effingham County Turner's No. 1 Hoagland, NW NW SW Section 14-9n-4e, underreaming 8-in. casing to 1,450 ft. N. M. Downing's No. 1 Alwerdt, NW NW SE Section 8-6n-5e, mystery well, total depth estimated at 2,500 ft., shut down.

In Lawrence County Ann Bell Oil Co.'s No. 1 Wright, NE cor. NW SE Section 21-2n-13w, drilling at 2,715 ft.

In Edwards County Howell & Metzner's No. 1 Broster, NW SE SE Section 34-2s-14w, shut down for orders at 2,658 ft.

In Edwards County Howell & Politis' No. 1 Broster, SW SE NE Section 34-2s-14w, shut down for orders at 2,767 ft. It had a showing of dead oil at 2,685-2,705 ft.

In Franklin County W. R. Hayes' No. 1 Old Ben Coal Co., SE SW SE Section 26-5s-1e, drilling at 2,575 ft.

In Franklin County Phillips Petroleum Co.'s No. 1 Boyles, NE NW SE Section 19-5s-3e, shut down for orders at 3,073 ft.

In Perry County Cochrane and others' No. 1 Pyramid Coal, NE NW SE Section 35-5s-3w, Cypress at 1,220 ft., Paint Creek at 1,308 ft., coring 1,339 ft. Gilliam and others' No. 1 Brostmeyer, SW SE NE Section 5-5s-3w, shut down for orders at 1,360 ft. E. S. Adkins' No. 1 Truax-Traer, SW NE SW Section 25-5s-2w, drill pipe stuck at 1,465 ft., preparing to drill.

In Jefferson County Reinhardt and others' No. 1 Inland Steel Co., C S½ SE SE Section 36-4s-1e, drilling at 3,115 ft.

In Monroe County H. W. Peter's No. 1 Schuster, NW NW SW Section 13-3s-8w, shut down at 1,200 ft. with the hole full of water.

In St. Clair County Oil Exploration Co.'s No. 1 Whickle, NW NW SE Section 34-2s-6w, drilling at 1,300 ft.

In Menard County William Johnson's No. 1 Johnson, SE NW NE Section 26-19n-5w, drilling at 1,122 ft.

In McDonough County Fowler, Hunter & Cruse were drilling at 452 ft. in No. 1 Stoneking, C SE NW Section 34-4n-3w of fourth principal meridian.

In Brown County Charles Measley and others' No. 1 Thomas, NE NE NW Section 15-1s-2w of fourth principal meridian, drilling at 170 ft.

In Wayne County Illinois Mid-Continent Oil Corp.'s No. 1 Vaughn, SW SW NE Section 35-2s-8e, total depth 3,370 ft., was acidized with 5,000 gal., and swabbed and flowed 300 bbl. of oil per day. The crew was still testing. Carl Robinson and others' No. 5 Felix, NW NW NW Section 35-2s-8e, swabbed and flowed 300 bbl. a day at a total depth of 3,429 ft.; testing. New Penn Development Co.'s No. 1 Xanders, NE SW SW Section 7-2s-9e, was drilling at 4,202 ft.

In White County McIntyre & Johnson's No. 1 Hon, NE NW SE Section 9-4s-14w, shut down for orders at 3,003 ft. Ivan White and others' No. 1 Ford and others, C W½ NW SE Section 34-4s-14w, drilling at 2,225 ft.

In White County Penn Illinois Oil Co.'s No. 1 Porter, C E½ NE SE Section 12-6s-8e, pay at 3,067-73 ft., flowed an estimated 600 bbl. per day naturally; testing.

In Hamilton County Alma Oil & Gas Co.'s No. 1 Federal Chemical & Coke Co., SE SW SE Section 9-7s-6e, drilling at 480 ft.

In Williamson County Adams & Doran's No. 1 Moore, SE NE NE Section 4-10s-3e, moving in rotary.

In Johnson County Tunnell Hill Oil Co.'s No. 1 Boner, C W½ SW NE Section 30-11s-3e, drilling at 3,100 ft.

In Johnson County Coates and others' No. 1 Albright, NE NW SE Section 22-12s-2e, drilling at 400 ft.

In Pope County Gardenshire & Smith's No. 1 Peoples, C SE SE Section 19-11s-5e, drilling at 950 ft.

In Jersey County E. M. Gould's No. 1 Pearce, NW cor. SE SW NE Section 27-8n-10w, drilling at 850 ft.; had small oil showing at 783 ft. T. W. Eagleton's No. 1 Schaeffer, NE NE SE Section 7-7n-10w, cleaning up after a fishing job at 540 ft.

In Bond County Devonian Oil & Gas Co.'s No. 1 Ambruell, NE SW NW Section 22-6n-4w, total depth 1,894 ft., underreaming 6-in. casing.

In Bond County Jarvis Brothers' No. 1 Zebb, NE NW SE Section 21-5n-3w, fishing for tools at 2,344 ft. McClosky lime was topped at 1,261-65 ft.; Devonian lime at 2,321 ft.

In Washington County Kingwood Oil Co.'s No. 1 Brink, SE SW SE Section 15-1s-1w, rig up.

In Fayette County Parrott & South's No. 1 Guffey, NE cor. SE NW NE Section 1-5n-2e, Cypress sand at 1,622 ft., bleeding core at 1,622-25½ ft., coring ahead.

In Madison County F. Jones and others' No. 1 Riegel, SE SW SW Section 17-3n-5w, drilling at 80 ft.

In Edgar County Sanders' No. 1 Weaver, NW NW NW Section 24-14n-14w, was shot with 25 qt. at 260 ft., but the casing collapsed and the hole was plugged and abandoned.

In Montgomery County Frank Brown and others' No 1 Gogleman, NW NW NE Section 22-9n-5w, was abandoned at 338 ft.

WESTERN KENTUCKY

OWENSBORO, Ky., Oct. 16.—Two oil wells, a gas well and four dry holes comprised the results in western Kentucky in the past week. Eleven new operations were started. Following were the results:

Breckinridge County, Glen Dean district, L. L. Benoist and others' No. 1 W. R. Moorman, dry hole, total depth 454 ft.

Butler County, Silver City district, Billy Phillips' No. 3 Martha Hawes, 15-bbl. well in Jones sand, total depth 479 ft.

Daviess County, Maceo district, Louis E. Maxson's No. 1 L. P. Boone, location. Utica district, Globe Oil Co.'s No. 10 J. M. Clark, rigging up; Master Oil Co.'s No. 1 William Johnson, dry hole, total depth 1,805 ft., deepened through McClosky from Bethel sand. Pellville district, A. V. Smith and others' No. 1 R. V. Howard, spudding in. Barney Calvert's No. 3 Frank Myles, drilling at 485 ft.

Hancock County, Saunders School district, C. D. Walker and others' No. 4 Uless Boling, dry hole, total depth 680 ft. Cloverport district, F. A. Turner and others' No. 6 R. Duke, rigging up. Patesville district, Lincoln Petroleum Co.'s No. 1 H. E. Shaw, dry hole, total depth 286 ft.

Henderson County, Sebree district, T. L. Boyce's No. 3 Arabella Walker, rigged up rotary for McClosky test.

McLean County, South Livermore district, J. C. Ellis' No. 2 Mrs. Lula Edmonds, 12-bbl. well in Jett sand, total depth 1,101 ft.

Ohio County, Sunnydale district, Courtney Combs' No. 4 Arthur Coy, moving in. Adaburg district, Leeper Oil Co.'s No. 9 E. Ford, moving in. Pattyville School district, H. Ogle's No. 9 A. R. Renfro, 50,000 cu. ft. of gas, completed at total depth of 339 ft. Buck Harman and others' No. 4 J. W. Tuttle, old dry hole at 360 ft., cleaning out and may drill deeper to McClosky. Taffy district, C. F. Kimmell and others' No. 1 G. R. Wooten, old dry hole at 1,560 ft., drilling deeper to Corniferous lime.

Union County, St. Vincent Academy district, Pat Hagan and Basin Drilling Co.'s No. 1 George Greenwell, rigging up rotary for a McClosky test.

EASTERN KENTUCKY

ASHLAND, Ky., Oct. 16.—Seventeen new gas wells were reported in the review of operations in eastern Kentucky, a part of these having been reported on a once-a-month roundup of gas operations. They combined to produce 6,331,000 cu. ft. initially. A 14-bbl. oil well and three dry holes brought the completions to 21. The following is the record of completed work with total depths of the wells and the initial production of oil or gas.

Kentucky-West Virginia Gas Co.'s No. 580 H. H. Smith, on Caney Creek in Knott County, 2,968 ft., 133,000 cu. ft. of gas, rock pressure 385 lb., 56 hours.

Warfield Natural Gas Co.'s No. 4839 Lester Day on Troublesome Creek in Knott County, 3,172 ft., 355,000 cu. ft. Warfield's No. 4840 W. A. Justice on Rockhouse Fork in Martin County, 2,647 ft., 198,000 cu. ft. Warfield's No. 4852 Frank A. Kirk on upper Alpha in Martin County, 2,810 ft., 24,000 cu. ft. of gas daily. Warfield's No. 4845 Ferrell Slone on Caney Fork in Knott County, 2,859 ft., 103.000 cu. ft.

I. B. Browning drilled a dry hole at 1,103 ft. in No. 2 Houston Patrick in the Burning Fork district of Magoffin County.

Virginian Gas & Oil Co.'s No. 1270-V N. J. Cassidy, Tract 3, on Coldwater in Martin County, 1,264 ft., 14 bbl. per day.

Columbian Fuel's No. 815-GW Auxier and others on Levisa Fork in Floyd County, 671,000 cu. ft. Columbian Fuel's No. 833-GW Benton Smith on Benton Branch in Pike County, 1,884 ft., 379,000 cu. ft.

United Carbon Co.'s No. 790 Republic Steel, on Greasy Creek in Pike County, 235,000 cu. ft. from shale and 450,000 cu. ft. from Big lime after being acidized.

United Carbon Co. reshot No. 797 South Shelby Land Co., Tract 3, on upper Chloe in Pike County, 13,000 cu. ft. of gas from Big lime and 60,000 cu. ft. from shale.

Hamilton Gas Co.'s No. 82-D James Hatcher on Ivy Creek in Floyd County. 2,915 ft., 103,000 cu. ft. of gas. On the same farm No. 81-D, 2,970 ft., 206,000 cu. ft.

Bent Mountain Oil & Gas Co.'s No. 1 Varney and Deakins heirs, on Bevins Branch in Pike County, 3,543 ft., 100,000 cu. ft.

James Hollen's deep test on the D. H. Rose land on Red River in Wolfe County, was recently reported a dry hole at 3,807 ft.

Charles Coleman got a dry hole in No. 1 William Carnes on Stinking Creek in Knox County at 800 ft.

Southeast Gas Co.'s No. 1 George Maynard, on Tug Fork in Martin County, 2,705 ft., 84,000 cu. ft. from Big lime (acidized), and 35,000 cu. ft. from shale.

Ware and others' No. 1 Cassady heirs on Davis Branch in Martin County, 2,586 ft., 350,000 cu. ft.

Huntington Oil Co. and Deiderich's No. 1 Henry Davis on Wolf Branch in Martin County. 2,510 ft., 2,214,000 cu. ft. from shale and 280,000 cu. ft. from Big lime.

Rockcastle Gas Co.'s No. 1 Vinson heirs on Buffalo Horn in Martin County, 150,000 cu. ft.

Penn Fitzpatrick and others' No. 1 Stephen Fitzpatrick on Middle Creek in Floyd County, 1,870 ft., 250,000 cu. ft.

CENTRAL OHIO

NEWARK, Ohio, Oct. 16.—Fifteen wells were completed in the Central Ohio area, nine gas wells and six dry holes. One oil completion is reported in the Lima field. The test in Franklin County has an oil showing in the base of the Trenton.

In Knox County, Clay Township, Meyer Levin and others' No. 2 Harry Clutter, Section 25, is good for 500,000 cu. ft. of gas, open flow, in the lime at 2,135-40 ft. Howard Township, H. E. Perkins' No. 1 Melvin L. Young, Lot 6, third quarter, is dry in the Clinton, total depth 2,556 ft.

In Licking County, in the Newark pool, a fair gas well and one dry hole were completed. Mary Ann Township, Ohio Fuel Gas Co.'s No. 1 Paul Devevoise, Section 24, has an open flow of 3,500,000 cu. ft. in the Clinton sand at 2,590-2,620 ft.; Guy Shrider and others' No. 1 Minnie Rice, Section 24, is dry in the Clinton, total depth 2,738 ft.; C. A. Peavy & Son's No. 2 Jesse Smith, Lot 18, had a small oil and gas showing in Berea, abandoned at 596 ft.

In Lorain County, Carlisle Township, R. E. Cain's No. 1 James Clark heirs, Section 21, was dry at 2,538 ft.

In Meigs County, Rutland Township, B. & W. Gas Co.'s No. 1 L. E. Haley, Section 8, is a small gas well in the Salt sand at 760 ft.

In Monroe County, Wayne Township, Gold Crown Oil Co.'s No. 3 John T. Christy, Section 19, gaged 120,000 cu. ft. of gas in the Salt sand at 776 ft.

In Muskingum County, Hopewell Township, Atha Co.'s No. 1 Lewis Wescott, Section 15, gaged 500,000 cu. ft. of gas when shut in on the casing, in Clinton at 3,310-50 ft. Union Township, Atha Co.'s No. 2 J. S. Evans, Section 17, was dry and abandoned at 816 ft. Muskingum Township, Lot 1, first quarter, Ellis Coal Co., on fee property, found the Clinton dry, total depth 3,900 ft.

In Perry County, Jackson Township, Section 11, the test of O'Mara & Sturm on T. L. Morgan land, topped the Berea at 813 ft. and gaged 200,000 cu. ft. of gas after drilling 1 ft. in the sand.

In Stark County, Lake Township, C. W. White and others completed two gas wells. No. 1 C. O. Tessmer, Section 27, made 350,000 cu. ft. of gas, open flow, in the white Clinton at 4,582-87 ft.; No. 1 Oliver Grubb, Section 34, gaged 700,000 cu. ft. of gas in the red Clinton sand at 4,490-4,548 ft.

Lima Field

In Henry County, Harrison Township, N. L. Stevens' No. 1 Sarah N. Wells, Section 36, was shot into a combination well in the Trenton, making an estimated 500,000 cu. ft. of gas, open flow, and 15 bbl. of oil. Top of Trenton at 1,680 ft., total depth 1,736 ft.

Dibble Oil & Gas Co. is rigging up on the Charles Harmon farm, in Section 21, Blanchard Township, Putnam County.

In Franklin County, Madison Township, Blacksten and others' No. 1 E. J. Simms, Section 15, had oil showing in the base of the Trenton at 2,679 ft. and 2,848 ft., bottom of Trenton at 2,850 ft., shale 2,850-57 ft., St. Peter at 2,857 ft. with Blue Lick water at 2,903 ft. Hole will be plugged back to 2,850 ft. and the oil showing acidized.

New Work Continues Ahead of Completions in W. Texas

By D. H. STORMONT

MIDLAND, Tex., Oct. 16.—For another week new locations exceeded completions in the West Texas district, there having been 57 new locations staked as against 46 completions, of which 34 were new oil wells, 7 old wells drilled deeper, and 5 dry holes. General field activity in the district centered in Yoakum County where several outpost tests to the Wasson-Bennett field entered the testing stages. A half-mile-northeast extension of the recently opened Lehn area in Pecos County and an indicated new oil pool for Ward County held the attention in the southern basin area.

Rockdale Oil Co.'s, Inc. No. 1 A. Sullivan marked a half-mile-northeast extension to the Permian-lime producing Lehn area of northern Pecos County when it entered pay sand at 1,664 ft. and drilled to 1,675 ft. The test started flowing by heads and was connected to storage. It is in NW SW N½ SE Section 72, Block 10, H.&G.N. Survey. The area was opened only 3 months ago and now has seven completed wells.

Extension to the Magnolia-Sealy pool in Ward County was seen at the Magnolia Petroleum Co.'s No. 2-43 Sealy, Section 43, Block F, G.M.M.B.&A. Survey, in the northern part of the county. The well found saturated sand at 2,744-48 ft. with an increase of oil in lime from 2,827 to 2,830 ft. It was last reported heading oil estimated at 100 bbl. daily. It continued drilling below 2,840 ft. Location is 1¾ miles south and slightly west of the pool.

Still centering attention in Ector County's North Cowden field is Stanolind Oil & Gas Co.'s No. 1-A Blakeney, prospective 3½-mile-southeast extension of the deep pay in the area. The well was last reported running 5-in. liner after swabbing at the rate of 8 bbl. hourly following a 3,000-gal. acid treatment at a total depth of 5,160 ft. Best pay section was logged from 5,120 to 5,140 ft., or about 1,000 ft. lower than the regular pay of the North Cowden field and slightly higher than the deep horizon in the discovery well, Gulf Oil Corp.'s No. 1 Holt. East offset to the discovery well, Sinclair Prairie Oil Co.'s No. 3 Fay Holt, Section 1, Block A, P.S.L. Survey, was drilling below 3,846 ft. in search of the deep pay.

Testing continued at the prospective 2½-mile-north outpost to the Permian-lime producing Tubbs area of northern Crane County. The well is Gulf Oil Corp.'s No. 11 Waddell, Section 20, Block 21-B, P.S.L. Survey. It was last reported flowing at the rate of 41 bbl. of fluid, 14 per cent basic sediment and water, each 24 hours. Total depth is 4,680 ft. The well had been acidized with 5,000 gal.

North Basin Area

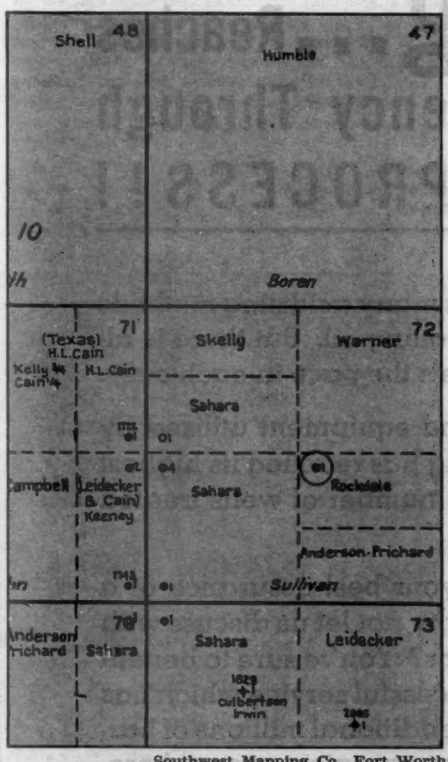
The Roberts area in the western part of the Wasson-Bennett pool of Yoakum County received a ¼-mile-north extension when Aloco Oil Co.'s No. 5 Johnson, Section 772, found pay from 4,920 to 5,236 ft. and was estimated at 112 bbl. daily, natural flow. The well will be acidized with 10,000 gal. before the official potential gage is taken. Operations were started early in the week at a new ¼-mile-west outpost to the south-extension area of the Bennett pool. The well is Mid-Continent Petroleum Corp.'s No. 2 J. G. Comer, 2,310 ft. from the west and 330 ft. from the north lines of Section 760. It is a quarter mile west of the same operator's No. 1 Comer, recently completed for 2,132 bbl. to extend the south end of the area ½ mile. A half-mile-north extension for the western part of the Denver area of the large pool was indicated at the Aloco Oil Co.'s No. 1 A. T. Morris, SW cor. Section 732. It topped saturated lime at 5,075 ft. and was drilling ahead below 5,102 ft. in saturated lime.

Plans were reported for a new wildcat 1¾ miles south and slightly east of the discovery well in the Slaughter pool, Hockley County. The tentative location is for George Livermore's No. 1 R. D. Glimp, 330 ft. from the north and east lines of Section 8, Block X, P.S.L. Survey, on the extreme southern edge of the field. Contract depth will be 5,200 ft.

Quarter-mile north extension for the extreme northwestern part of the Seminole pool of Gaines County was seen as the week closed. Amerada Petroleum Corp.'s No. 1 Auten, 660 ft. from the south and east lines of Section 267, Block G, W.T. Survey, flowed 15 bbl. of oil per hour on a 1-hour test from saturation at 5,294-5,315 ft.

WEST CENTRAL TEXAS

FORT WORTH, Tex., Oct. 16.—Extension of production in several of West Central Texas' recently opened oil pools featured an eventful and active week



Southwest Mapping Co., Fort Worth

Rockdale Oil Co. has extended the northern limits of the recently opened Lehn area in northern Pecos County ½ mile. It is the seventh well in the new pool

in the district. New outposts were either completed or announced for the Bowles pool of Taylor County, the Loving pool in Stephens County, the Cozart pool in Callahan County, the increasingly active Nelson pool in extreme eastern Young County, and the Griffin pool in Jones County.

Indicating the largest well in the field and extending production limits ¾ mile to the north in the Bowles pool, located on the Taylor and Callahan county line, French Robertson and associates brought in No. 1 Reeves, 150 ft. from the south and east lines of the NW¼ Section 28, B.A.L. Survey. The well flowed uncontrolled for 3 hours at an estimated rate of 750 bbl. daily. Production is from the Cook sand from 1,720 ft. to 1,737 ft., total depth. Due to lack of storage the well was shut in with no further gages taken.

First outpost for Stephens County's newest oil pool, discovered last summer by Wittmer Oil & Gas Properties, has been staked by that company as a ¼-mile extension to the southwest of the pool opener. The test will be No. 2 Loving, C NW NE Section 11, O.A.L. Survey, in the southwestern part of the county. The discovery, No. 1 Loving, gaged 107 bbl. daily to open production from the deep Caddo lime from 3,492 ft. to 3,512 ft.

East Callahan County's Cozart area received considerable stimulus when Little Bennett's No. 1 Ledbetter, 1 mile west of the discovery well, was completed for 117 bbl. daily at a total depth of 1,730 ft. Despite its distance from the pool opener, it is being called a possible extension. Southwest limits of the pool were defined by the L. A. Warren and others' No. 1 Huff, ½ mile southeast of the discovery well, when it was ordered abandoned at a total depth of 1,712 ft. with no showings reported.

New test for the west side of the nearly drilled-up Griffin pool in Jones County was staked by the Avoca Methodist Church on its lot in the town of Avoca on the western side of the field. Location is in the church yard, Block 12. The church owns three lots in the tract which is in Section 21, H.&T.C. Survey. Drilling is scheduled to commence next week.

The Ivy pool of northwestern Shackelford County received two new northwest edge wells. Algord Oil Co.'s No. 6 E. P. Swenson is waiting on cement after drilling saturation in lime from 3,158 to 3,160 ft. Location is in Section 158, B.B.B.&C. Survey. Ungren & Frazier's No. 2 W. H. McKeever, west extension for the northwest part of the pool, has been completed for 80 bbl. of oil hourly after treatment with 1,000 gal. of acid in lime from 3,163 to 3,173 ft. It is located in Section 158, B.B.B.&C. Survey.

The increasingly active Nelson area on the Young and Jack county line received its second producer as the week closed. Opened several weeks ago by the Nelson Oil Syndicate's No. 1 Birdwell, the new well is Taubert & McKee's No. 1 S. Shanafelt, Block 17, J. Poitevant Survey, just across the county line and into Young from the discovery well. Pay was topped in the Marble Falls lime at 4,395 ft. and drilled to a total depth of 4,415 ft. Seven-inch casing has been set at 4,012 ft. and the well is estimated for from 300 to 400 bbl. daily. Several other tests in the area are drilling ahead toward the deep horizon, both in Young County and in Jack County.

Prospects of a new Strawn-sand pool in northwestern Stephens County were seen as the week closed when T. G. Shaw, trustee's No. 1 S. P. Stroud, northwest quarter of the G. Newton Survey, was reported to have topped a saturated section of Kisenger sand of lower Strawn series and made a head of oil over the derrick. The sand was topped at 2,597 ft. and drilled to a total depth of 2,602 ft. Seven-inch casing has been ordered cemented at 2,594 ft. Plug will be drilled some time the coming week.

WEST TEXAS FIELD COMPLETIONS
(24-hour gages)

Cochran County

In the Duggan pool, Devonian Oil Co.'s No. 3-B-19 Duggan, 5,020-68 ft., 512 bbl. Devonian Oil Co.-Honolulu Oil Co.-Cascade Petroleum Corp.'s No. 2-C-8 Duggan, 5,040-80 ft., 480 bbl.

Crockett County

In the Crockett pool, Gilcrease Oil Co.'s No. 3-16 University, 1,375-1,461 ft., 52 bbl., old well drilled deeper. Gilcrease Oil Co.'s No. 4-16 University, 1,393-1,460 ft., 47 bbl., old well drilled deeper.

Crane County

In the Dunes pool E. E. Fogelson's No. 4-D Univer-

sity, 3,445-3,700 ft., 66 bbl., old well drilled deeper. Magnolia Petroleum Co.'s No. 21 Hardwick-University, dry and abandoned at total depth of 3,546 ft. O. C. Proffitt's No. 1 Anna Gibbs, temporarily abandoned at total depth of 2,340 ft.

Ector County

In the Foster pool Shell Oil Co., Inc.'s No. 7-B Witcher, 4,100-4,265 ft., 811 bbl. Stanolind Oil & Gas Co.'s No. 20-B Cowden, 3,995-4,160 ft., 1,313 bbl. Stanolind Oil & Gas Co.'s No. 23-B Cowden, 4,000-4,200 ft., 1,049 bbl. Stanolind Oil Gas Co.'s No. 21 Witcher, 3,970-4,170 ft., 2,376 bbl. York & Harper's No. 7-A Foster, 4,169-4,224 ft., 1,617 bbl. York & Harper's No. 12-D Foster, 4,196-4,295 ft., 1,026 bbl.

In the North Cowden pool Aloco Oil Co.'s No. 3 O. B. Holt, 4,120-4,300 ft., 1,135 bbl. Octagon Oil Co.'s No. 4 Woods, 4,260-4,430 ft., 2,256 bbl. Texon Oil & Land Co.'s No. 4-A Midland National Bank, 4,300-4,420 ft., 1,044 bbl. Trans Southern Petroleum Co.'s No. 1-A O. B. Holt, 4,289-4,400 ft., 180 bbl. Trans Southern Petroleum Co.'s No. 2-A O. B. Holt, 4,250-4,420 ft., 318 bbl. In the Goldsmith pool, Gulf Oil Corp.'s No. 222 Goldsmith, 4,150-99 ft., 1,848 bbl. Gulf Oil Corp.'s No. 223 Goldsmith, 4,157-4,212 ft., 2,184 bbl. H. A. Hedburg's No. 2 Cummins, 4,151-4,208 ft., 795 bbl.

In the Jordan pool, Cosden Petroleum Corp.'s No. 3-A University, 3,548-3,714 ft., 990 bbl.

Howard County

In the Chalk-Settles pool Illinois Oil Co.'s No. 5 Percy Jones, 2,490-2,975 ft., 217 bbl. Parker Drilling Co.'s No. 2 Chalk-Texas, dry and abandoned at total depth of 3,052 ft. Royal Oil & Gas Co.'s No. 18 D. Roberts, 2,954-62 ft., 898 bbl.

Pecos County

In the Lehn area W. E. Keeney's No. 2 Masterson-Lehn, 1,668-84 ft., 203 bbl. Sahara Oil Co.'s No. 1 Iowa Realty Co.-Redmond, 1,673-1,777 ft., 85 bbl. Sahara Oil Co.'s No. 1 Sullivan, 1,670-1,740 ft., 103 bbl.

(Continued on Page 104)

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CRUDE RUNS DECLINE

(Continued from Page 72)

Company and location—	Daily capacity	Av. dly. runs Oct.	Av. dly. runs Sept.
Macmillan Pet. Corp., Norphlet	2,500	2,000	2,000
Root Ref. Co., El Dorado	10,000	8,100	8,330
Stephens Ref. Co., Stephens	700	200	200
Total	38,200	27,900	28,230

NORTH CENTRAL TEXAS

Baird Refining Co., Baird	1,500	1,200	1,200
Bryson Pipe Line & Refining Co., Bryson	2,000	1,250	1,250
Bryson Ref. Co., Inc., Bryson	1,500	800	800
Coleman Ref. Co., Coleman	1,000	400	400
Continental Oil Co., Wichita Falls	6,000	4,680	4,680
Cosden Pet. Corp., Graham	2,000	600	600
Falls Ref. Co., Wichita Falls	2,500	500	500
Gratex Ref. Co., Graham	300	300	300
Gulf Oil Corp., Fort Worth	8,000	6,000	6,000
Hightower Oil & Ref. Corp., Brownwood	750	(*)	(*)
Jacksboro Ref. Co., Jacksboro	400	250	250
La Salle Pet. Corp., Burkburnett	3,000	1,000	1,000
Magnolia Pet. Co., Fort Worth	7,500	5,200	5,200
Muenster Ref. Co., Muenster	1,800	1,000	1,000
North Texas Ref. Co., Gainesville	600	300	300
Ohio Oil Co., Fort Worth	5,000	4,000	4,000
Olney Oil & Ref. Co., North Olney	3,500	1,000	1,800
Paluxy Asphalt Co., Mankins	1,500	1,200	1,200
Panhandle Ref. Co., Wichita Falls	4,200	2,000	2,500
Panhandle Ref. Co., Lueders	1,500	875	900
Taylor Ref. Co., Taylor	1,000	600	600
Texas Pacific Coal & Oil Co., Caddo	800	600	600
W. T. Waggoner Est., Vernon	6,000	3,500	3,500
Total	62,350	37,255	38,580

*Shut down.

EAST TEXAS

Beacon Oil & Ref. Co., Henderson	4,500	(*)	(*)
Danciger Refs., Inc., Longview	6,000	(*)	(*)
East Texas Ref. Corp., Longview	6,000	2,500	5,000
Gladewater Ref. Co., Gladewater	3,000	1,500	1,500
Hurricane Pet. Corp., Overton	5,000	3,700	3,700
Hurricane Pet. Corp., Arp	3,300	2,800	2,800
Independent Ref. Co., Arp	3,500	2,500	2,400
Lynch Ref. Co., Kilgore	3,000	2,500	2,200
Magnolia Pet. Co., Corsicana	5,000	4,500	4,500
McMurrey Ref. Co., Tyler	10,000	4,000	4,900
Model Oil & Ref. Co., Kilgore	2,000	2,500	2,500
Paluxy Asphalt Co., Talco	5,000	2,500	2,500
Premier Oil Ref. of Texas, Gregglown	4,000	2,800	2,800
Talco Asphalt & Ref. Co., Mount Pleasant	7,500	5,000	5,000
Texas Co., Dallas	16,000	8,000	8,000
Tower Ref. Co., Overton	3,500	(*)	(*)
Travis, M. M., Inc., Kilgore	4,000	3,300	3,200
Total	91,300	48,100	51,000

*Shut down.

WEST TEXAS AND PANHANDLE

Aero Gas & Ref. Co., Fort Stockton	350	300	300
Coltex Ref. Co., Colorado	12,500	8,000	8,000
Cosden Oil Co., Big Spring	12,500	11,000	11,000
Danciger Refs., Inc., Pampa	6,500	5,500	5,500
Danube Oil Corp., Borger	800	400	400
Farmers Ref., Lubbock	500	300	300
Gulf Oil Corp., Sweetwater	7,000	6,200	6,200
Howard County Ref. Co., Big Spring	2,000	1,000	1,200
Motor Fuels Corp., Levelland	4,000	2,000	1,800
Moutray Oil Co., Hawley	1,500	950	750
Onyx Ref. Corp., Hawley	3,000	1,500	1,500
Panhandle Ref. Co., Kings Mill	2,500	1,200	1,300
Payward Ref. Co., Shamrock	600	500	500
Phillips Pet. Co., Borger	35,000	25,800	26,700
Post Refining Co., Rotan	800	500	500
Shamrock Oil & Gas Corp., Sunray	3,000	2,200	2,200
Stamford Ref. Co., Stamford	450	400	400
Shamrock Oil & Gas Corp., Lefors	1,600	1,000	1,000
Standard Oil Co. of Texas, El Paso	14,000	8,400	8,400
Star Light Ref. Co., Ballinger	1,000	500	500
Texas Co., El Paso	2,000	1,600	1,600
Texas Co., Amarillo	6,000	3,500	3,500
Western Ref. Co., Fort Stockton	1,000	750	750
Wickett Pet. Co., Wickett	3,500	2,200	2,200
Total	122,100	85,700	86,500

SOUTHWEST TEXAS

Border Oil & Ref. Co., Sullivan City	1,000	500	500
Eggleston Oil Products Co., Three Rivers	1,000	1,000	1,000
Humble Oil & Ref. Co., San Antonio	5,000	3,500	3,500
Magnolia Pet. Co., Luling	8,000	5,200	5,200
Majestic Ref. Co., Dale	500	(*)	(*)
Pettus Oil & Ref. Co., Pettus	1,000	900	900
Phoenix Ref. Co., San Antonio	2,000	1,500	1,500
Phoenix Ref. Co., Pettus	900	750	750
Pioneer Oil & Ref. Co., Somerset	2,000	750	750
Rado Ref. & Prod Co., McAllen	800	500	500
Texas Co., San Antonio	5,000	3,500	3,500
Total	27,200	18,100	18,100

*Shut down.

Rocky Mountain Area

By
T. R. INGRAM

187 Bbl. in 7 Hours From Test in Fort Collins Field

DENVER, Colo., Oct. 16.—The Continental Oil Co.'s test of the Dakota sand in the Fort Collins field in Colorado swabbed 187 bbl. in 7 hours and is waiting for tankage to test on the pump. The Hintze wildcat in eastern Colorado is spudding.

The only completion in Wyoming was the Stanolind Oil & Gas Co.'s No. 2 Ohio in Little Buffalo basin, which was completed for 15,000,000 cu. ft. of gas in the Wall Creek. Lance Creek had five new operations.

Cut Bank, in Montana, had two completions and three new operations. The Huber-Montana Co.'s No. 3 Government, an offset to a 43,000,000-cu. ft. gas well, was an oil well in two sands. Kevin-Sunburst had two average completions and one new operation.

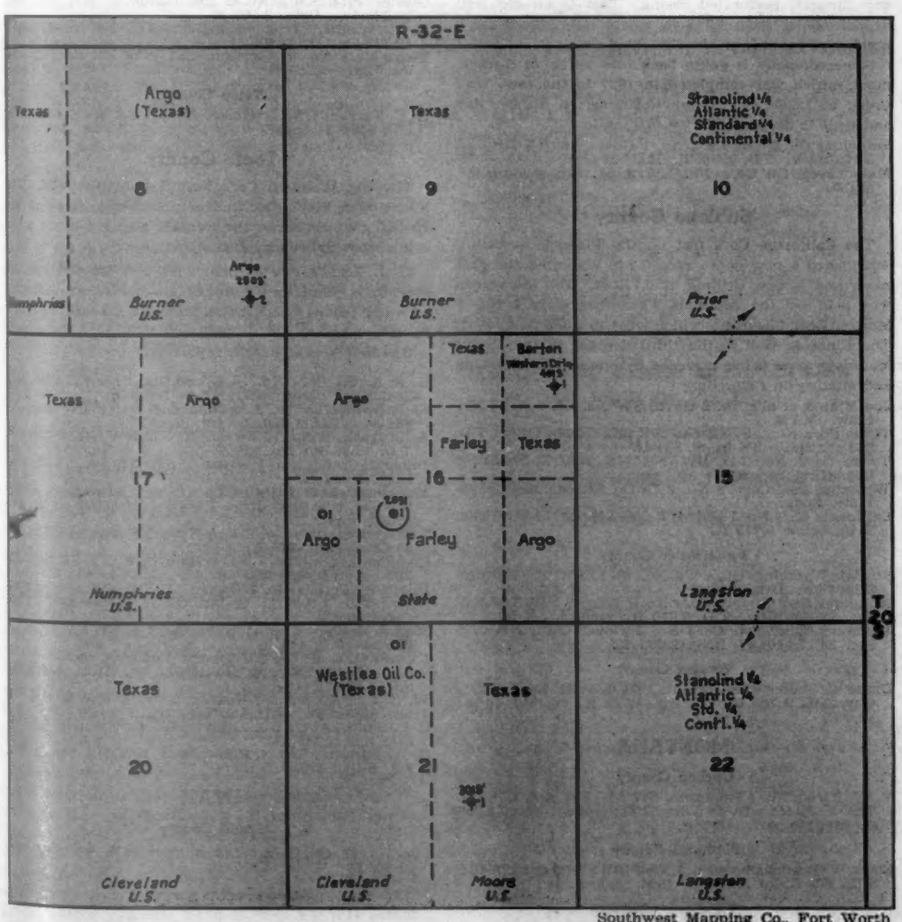
SOUTHEAST NEW MEXICO COMPLETIONS

Completion of Frank M. Farley's No. 1 Texas Co.-State in Lea County, New Mexico, for an estimated 200 bbl. daily to open the first oil pool in the district in several months by far exceeded all other development in the Southeast New Mexico area during the past week. Continuing its uphill trend, the entire district again showed an increase in new locations, 27 sites having been staked. Fifteen were in Lea County and 12 in Eddy, of which 7 were in the Loco Hills pool.

The Lea County discovery of Frank M. Farley and others' No. 1 Texas Co.-State, Section 16-20-32, is in the extreme southwestern corner of the county. Located 13 miles west and slightly north of the Lynch area, the pool opener found pay from 2,629 to 2,631 ft., filling 1,600 ft. in 2 hours and 2,400 ft. in 6 hours. Total depth is 2,631 ft. in lime. Some estimates rate the discovery as high as 500 bbl. daily. The crew was last reported running 6⅝-in. casing which will be cemented at 2,600 ft. Plug will be drilled and initial testing will begin early in the week.

As a west offset to the strike, Argo Oil Co. plans to spud, early this week, its No. 1 Texas Co.-State, C NW SW Section 16-20-32. The second new location for the area is the Westlea Oil Co.'s, composed of Frank M. Farley, Ted Weiner, Hal C. Peck and J. H. Croft, No. 1-C Texas Co.-Cleveland, 2,310 ft. south of the new discovery. Tentative location has been made for another Westlea Oil Co. test, No. 1 Texas Co.-Anna C. Moore, 330 ft. from the north and 2,310 ft. from the east lines of Section 21-20-32, same section as the first Westlea test.

In Eddy County and northwest of the Grayburg-Jackson area, B. H. Nolen No. 1-X Iles, wildcat offering prospects of a new sand pool, was last reported preparing to run electrical survey. After drilling cement plug from 6⅝-in. casing cemented at 1,620 ft., it was bailed dry and bailed 1½ bailers of oil per hour for 4 hours. Oil was encountered in red sand from 1,803 to 1,819 ft., total depth. The indicated pool opener is 6 miles northeast of the Red Lakes gas area and the same distance northwest of the Grayburg-Jackson area. It is in the SE cor. Section 17-16-29.



Southwest Mapping Co., Fort Worth

Frank Farley, Fort Worth, Tex., has opened a new pool at his No. 1 State, in the extreme southwest corner of Eddy County, New Mexico. The well is estimated for 500 bbl. daily and two new locations have been staked

Eddy County

In the Loco Hills pool, Franklin Petroleum Co.'s No. 1 Canfield, NW NW Section 7-18s-30e, gaged 60 bbl. hourly through open tubing after shot in pay from 2,795 to 2,820 ft., total depth. Brainard & Guy's No. 1 Guy, NW cor. SW NW Section 10-18s-29e, flowed 45 bbl. hourly through open tubing after shot in pay from 2,553 to 2,595 ft., total depth.

Lea County

In the Cooper-Lynn area, Continental Oil Co.'s No. 3-A-28 Lynn flowed 96 bbl. hourly naturally through ¾-in. choke from pay from 3,619 to 3,661 ft. In the Mattix area, Continental Oil Co.'s No. 5-B-27 Jack, Section 27-24e-37s, tested 35 bbl. of oil in 13 hours by gas lift from pay logged from 3,510 to 3,535 ft., total depth.

Eddy County

Carper Drlg. Co.'s No. 4 Robinson, SE SE SW Sec. 25 16-31. T.D. 4,025 ft.; tstg.
G. R. Burke's No. 1 State, NE NE NW Sec. 36-16-24. Drlg. 1,547 ft.
B. H. Nolem's No. 1 Iles, SE SE SE Sec. 17-16-29. Tstg. 1,803-19 ft.; est. 35 B.O.P.D.; rng. electrical survey.
Allen, Fair & Pope's No. 4-A State, SE SW NW Sec. 36-17-29. T.D. 3,252 ft.; pay 3,200-11 ft.; installing pump.
Artesia Drlg. Co.'s No. 1 Hoffman, SE SE SE Sec. 14-17-24. S.D.R. 423 ft.
J. R. Cones et al's No. 1 Saunders, SE SE NW Sec. 13-17-27. S.O. 505 ft.; S.D.O. 600 ft.
Danciger O. & R. Co.'s No. 5-A Turner, C N½ NW NW Sec. 19-17-31. S.O.&G. 3,409-15 ft.; tstg.
J. E. Hughes' No. 3 Brooks, NE NW NW Sec. 19-17-28. S.D.O. 2,222 ft.
Plains Prod.'s No. 1 Daugherty, SE SE SE Sec. 11-17-27. T.D. 428 ft.; S.D.O.
Republic Prod.'s No. 3-B Robison, SE SE SE Sec. 35-17-29. S.S.O. 3,165 ft.; shot with 40 qt.; est. 4 B.O. P.D.; prep. retest.
Plains Prod. Co.'s No. 1 Massie, C SW SW Sec. 27-18-29. S.D.R. 2,095 ft.; S.O. 2,075-83 ft.
Barney Cockburn's No. 1 Graham-State, C NE NE Sec. 16-18-31. Drk.
Continental et al's No. 1 Travis, SE SE SE Sec. 3-18-29 P.B. 2,670 ft.; pump 65 B.F. in 12 hours; ½ oil, ⅝ b.s. and w.; tstg.
L. E. Elliott's No. 1 Elliott, SE SE SE Sec. 24-18-29. S.S.O. 3,255-75 ft.; drlg. 3,548 ft.
Franklin Pet. Corp.'s No. 1 Masteller, NW NW NE Sec. 7-18-30. Loc.
Franklin Pet. Corp.'s No. 1 Cappedge, NW SW NW Sec. 5-18-30. S.D.O. 3,092 ft.
E. S. McAuliff's No. 1 Coates, C SE NE Sec. 3-18-23 S.D. 1,079 ft.
Me-Tex et al's No. 1-B Ballard, C NW NW Sec. 8-18-29. T.D. 3,017 ft.; P.B. 2,635 ft.; est 30 B.O.P.D. while C.O.; tstg.
Saunders Bros.' No. 1 Murdock, NW NW SW Sec. 4-18-29. T.D. 2,625 ft.; F. est. 100 B.O.P.D.; flwd. 28 B.O. in 40 min. then went dead; prep. retest.
Fred Turner's No. 1 Nickson, C NE NE Sec. 30-18-26. S.D.O. 2,150 ft.
Underwood & Sanders' No. 2 Miller, SW NW NW Sec. 4-18-29. T.D. 2,405 ft.; milling csg. 1,800 ft.; jnkd. hole; skidded 50 ft. east; S.D.R. 1,660 ft.
J. W. Elliott's No. 1 Cannon (O.W.D.D.), C SW SE Sec. 4-19-30. S.D. 2,355 ft.
Trojan Oil Co.'s No. 1 Grant, SW SW NE Sec. 33-20s-25e. S.O. 1,530 ft.; S.D.R. 1,580 ft.

Dona Ana County

Picacho O. & G. Co.'s No. 1 Armstrong, Sec. 15-23s-1w. S.D. 2,410 ft., T.D.; repairs.
Slack & Mahres' No. 1 Simmons, Sec. 35-22s-5e. S.D 2,785 ft., T.D.; repairs.

Chaves County

G. H. Cowden's No. 1 Brunson, 330 ft. N and W lines, Sec. 27-9s-30e. C.&P.
R. M. Baker's No. 1 Baker, NW NW NW Sec. 10-19-30. R.U. and S.D.
Caudill & French's No. 1-A Smith (O.W.D.D.), Sec. 1-4-29. Prep. to cmt. off csg. from 3,336-70 ft.; drlg. by csg. 3,694 ft.
E. J. Fisher's No. 1 Hill, CSL S½ Sec. 8-15-25. S.D.O. 850 ft.
Nay Hightower's No. 1 Billingslea, C SW NE Sec. 28-11-30. T.D. 3,445 ft.; P.B. 3,430 ft.; S.D.O.

Tarkenton Bros.' No. 1 Peters, SE SE NW Sec. 33-11-25. S.S.O. 1,280-85 ft.; drlg. 1,427 ft.
Western Minerals, Inc.'s No. 1 Dow, C SW NW Sec. 27-10-30. S.O. 3,920-25 ft.; S.D.R. 4,090 ft.

Luna County

O. D. Berry's No. 1 Berry, SE SE SW Sec. 33-22s-10w. S.D.O. 1,000 ft.

Lea County

Coastal Development's No. 1 Caylor, NW NW SE Sec. 6-17-37. T.D. 5,005 ft.; reran 2-in. tbg. to 4,784 ft.; ran 1-in. tbg. inside of 2-in. to 3,339 ft., with 5 flow valves; flwd. 20 B.O. wtr. plus S.S.O. in 4 hrs. by gas lift.; P.B. 4,785 ft.; tstg.
Frank Farley's No. 1-A State, Sec. 18-21s-30e. Prep. drill plug; sat. 2,629-31 ft.; new pool opener; est. 200 B.O.P.D.
Maljamar O. & G. Co.'s No. 2 Mitchell, SW SE SW Sec. 5-17-32. T.D. 4,498 ft.; P.B. 3,862 ft.; S.I.; P.B. depth 4,003 ft.
Ohio Oil Co.'s No. 1 State-Staplin, C SE NW Sec. 10-17-35. Drlg. 4,710 ft.
Continental Oil Co.'s No. 8 Britt B-15, C W½ NW SE Sec. 15-20-37. Tstg. 3,882 ft.; 73 B.O. in 7 hrs. after acd.; tstg.
Wilson Oil Co.'s No. 1 Shell-State, C NE SW Sec. 7-21-35. T.D. 3,736 ft.; flwd. 51 B.O.P.D.; tstg. 3,736 ft.
Peters & Elder's No. 3 Brunson, SW SW SW Sec. 3-22-37. Flwd. 42 B.O. in 7 hrs.; T.D. 3,742 ft.; tstg.
Skelly Oil Co.'s No. 1 Sherrell, C SW SW Sec. 31-24-37. Drlg. 1,453 ft.
Anderson-Prichard Oil Corp.'s No. 9 Wells, C SW NE Sec. 6-25-37. P.B. 3,394 ft.; acid. with 1,000 gal.; 17 bbl. fluid, 40% wtr. on gas-lift.; tstg.

NORTHWEST NEW MEXICO

San Juan County

Continental Oil Co.'s No. 97 Rattlesnake, C S½ SW Sec. 12-29n-19w. T.D. 796 ft.; rng. tbg. to test.
Angel Peak Oil Co.'s No. 8 Govt., C NW SW Sec. 13-28n-11w. T.D. 1,420 ft.; R.U. new rig.
Continental Oil Co.'s No. 100 Rattlesnake, NE NW NE Sec. 2-29n-19w. T.D. 3,106 ft.; drlg. out cmt. 2,017 ft.

COLORADO

Boulder County

Continental Oil Co.'s No. 1 Borra, SE NE SW Sec. 5-1s-69w. Drlg. silty sh. 5,952 ft.; T. Hygiene 5,395 ft.

Custer County

Henry Donnelly's No. 1 Hodge, SE NE Sec. 26-21s-69w. Drlg. below 1,000 ft.

El Paso County

F. F. Hintze et al's No. 1 State, CEL SE SE Sec. 16-11s-60w. Spdg.; will set 20-in.; el. 6,460 ft.

Fremont County

T. E. Maloney's No. 1, SE NW Sec. 34-19s-69w. S.D. 1,725 ft.
Waterville Oil Co.'s No. 2 Persons, CWL NE NE Sec. 17-19s-69w. S.D. 330 ft.

Larimer County

The Continental Oil Co.'s No. 1 Meyer, on the Fort Collins dome which tested the Sundance at 5,206 ft., total depth, and plugged back to 4,686 ft., is preparing to make a pumping test. It was shot with 20 qt. at 4,464-86 ft and swabbed 187 bbl. in 7 hours through the casing with fluid level remaining at 3,100 ft. It is shut down for tankage. This is the first test of sands below the Muddy in this field.

Continental Oil Co.'s No. 1 Meyer, SW SE SW Sec. 19-8n-68w. T.D. 5,206 ft.; P.B. to 4,686 ft.; shot with 20 qt. at 4,464-4,686 ft.; W.O. tankage.

Moffat County

Cooperative O. & G. Co.'s No. 1 Gossard, CWL E½ E½ Sec. 29-5n-93w. Spd. and S.D.; will skid machine and bld. standard rig.
Steamboat Springs Synd.'s No. 1 Sutton, NE NE SW Sec. 1-5n-96w. Drlg. 1,900 ft.

Park County

South Park Oil Co.'s No. 1 Lemar, NE NE SE Sec. 34-11s-75w. Drlg. 7,060 ft.

Rio Blanco County

Texas Co.-California Co.'s No. 3 Unit, NE NE NE Sec. 27-3n-94w. Rng. rig found.
Buford Oil Co.'s No. 1 Govt., C SW SW Sec. 16-1n-91w. Drlg. 3,953 ft.; encouraging S.G. in basal Penn. at 3,947 ft.; est. 90 ft. to T. Miss.

Routt County

L. C. Craig and L. C. Moore's No. 1-X Irwin, C SW NE Sec. 33-7n-85w. T.D. 1,935 ft.; set 8¼-in. at 1,835 ft. for W.S.O.

WYOMING

Carbon County

Sinclair-Wyoming Oil Co. is continuing to deepen its Tensleep sand wells in the Wertz field where excellent results have been had in the lower part of that horizon. Its No. 13 Wertz, completed last July at 6,065 ft. for 129 bbl. per hour, is rigging up to drill deeper.

Sinclair-Wyoming Oil Co.'s No. 13 Wertz, NE NW NW Sec. 7-26n-89w. T.D. 6,065 ft;. R.U. to D.D.
Martin & Gaylord's No. 1 Horne Bros., CNL NW SW Sec. 22-22n-78w. Drlg. 900 ft.; T. Wall Ck. 138 ft.
Ohio Oil Co.'s No. 1 University, SW SW SW Sec. 26-20n-78w. Drlg. 3,160 ft.
Albert Dev. Synd.'s No. 1 Boeke, SW NW Sec. 18-25n-79w. Drlg. 318 ft.
Producers Oil Co.'s No. 1 Lake Valley, CNL Sec. 14-20n-88w. S.D. 3,380 ft.

Natrona County

Continental Oil Co.'s No. 1 McGrath, C NW SW Sec. 15-34n-78w. Drlg. dry sd. and sh. 5,597 ft.; T. 2nd Wall Cr. 5,510 ft.
Connelly Drlg. Co.'s No. 1 State, SW SW NW Sec. 36-36n-81w. Drlg. below 1,300 ft.
Summit Oil Co.'s No. 2 Govt., NW NE NE Sec. 21-33n-80w. S.D. 960 ft.

Niobrara County

There were no completions in Lance Creek. Five new operations were reported.

A. B. Cobb & Co. No. 5 Novick, NE NE NW Sec. 6-35n-65w. B.R.
Ohio Oil Co.'s No. 13 Carrie Putnam, C NW NW Sec. 4-35n-65w. B.R.
Continental Oil Co.'s No. 6 Sam Joss, NW NW NE Sec. 6-35n-65w. R.U.R.
Continental Oil Co.'s No. 6-A Dielman, NW NE NE Sec. 7-35n-65w. Spdg. 100 ft.
Continental Oil Co.'s No. 5-A Dielman, SE NW NW Sec. 8-35n-65w. Bldg. rig.
Ohio Oil Co.'s No. 7 Leo O.P.C.-16, NE NE SW Sec. 35-36n-65w. R.U.R.
H. D. Moore et al's No. 1 Berggren, SE NW Sec. 23-35n-63w. T.D. 2,242 ft.; T. Leo 2,228 ft.; rng. 7-in.
Minnelusa Oil Corp.-MacKinnie Oil & Drlg. Co.'s No. 1 Thompson, NE NW NE Sec. 7-35n-65w. T.D. 3,993 ft.; R.U.R. to D.D.; O.W.D.D.
Minnelusa Oil Corp.-MacKinnie Oil & Drlg. Co.'s No. 6 Thompson, NE NW SE Sec. 7-35n-65w. Drlg. 2,160 ft.
Continental Oil Co.'s No. 4 Apex-1, NW NE NE Sec. 34-36n-65w. Drlg. sd. and sh. 3,406 ft.
Continental Oil Co.'s No. 5 Apex-3, SE NE SW Sec. 34-36n-65w. Drlg. sh. 3,990 ft.
Argo Oil Co.'s No. 11-B Elliott, NE NE SW Sec. 5-35n-65w. T.D. 4,115 ft.; T. 1st Sundance 3,825 ft.; prep. to cmt.
Continental Oil Co.'s No. 4-B Diehlman, SW SW NW Sec. 8-35n-65w. Drlg. 4,450 ft.; T. r.b. 4,385 ft.
Ohio Oil Co.'s No. 13 Lamb-Acct. 1, NW SE NE Sec. 5-35n-65w. Drlg. 4,940 ft.; T. Converse 4,705 ft.
Continental Oil Co.'s No. 7 Rodeo-4, SW SW NE Sec. 35-36n-65w. T.D. 4,285 ft.; cmtd. 7-in. 4,243 ft.; installing pump.
C. L. Price's No. 2 Lamb, SE NW NW Sec. 7-35n-65w. Drlg. 4,645 ft.
Argo Oil Co.'s No. 10-A Elliott, SE NW SE Sec. 5-35n-65w. T.D. 5,346 ft. rng. 7-in. to T. Leo sd. 5,340 ft.
Argo Oil Co.'s No. 7 Ford, NW SE NW Sec. 33-36n-65w. T.D. 5,560 ft.; Leo pay 5,365-5,407 ft.; crd. sat. sd. 5,517-34 ft.; cmtd. 7-in. 5,365 ft.
A. B. Cobb's No. 4 Novick, SE SE SW Sec. 6-35n-65w. T.D. 5,380 ft.; shot Joss sd. 150 qt.; flowed 6 B.P.H.; will shoot again.
F. F. Hintze et al's No. 1 Wright-Govt., C NW SE Sec. 30-36n-63w. T.D. 4,964 ft.; cmtd. 7-in. at 4,617 ft. and perf. to test.
Fall River Prod. & Roy. Co.'s No. 1 Govt., CSL SE SE Sec. 35-40n-61w. S.D. 2,390 ft.

Park County

The Stanolind Oil & Gas Co.'s No. 2 Ohio, NW NW NE Section 3-47n-100w, Little Buffalo basin gas field, was completed at 1,586 ft. for 15,000,000 cu. ft. per day through perforated casing. This is an old well drilled deeper from 1,344 ft. where it produced for a number of years from the first Wall Creek.

Same company is going back into its No. 1 Government, which was completed in 1927 in the first Wall Creek at 1,590-1,605 ft. for 15,897,000 cu. ft. per day and drill it deeper.

Stanolind Oil & Gas Co.'s No. 1 Govt., NE NE NE Sec. 2-47n-100w. T.D. 1,702 ft.; R.U. to D.D.
Mule Creek Oil Co.'s No. 1, Lot 51, Sec. 9-46n-101w. M.I.M.

Sublette County

The California Co.'s test on the Pinedale structure established a new depth record for Wyoming the past week and is now drilling at 9,775 ft. The old record was held by the Amerada Petroleum Corp.'s No. 1 Morton, near Cheyenne, which went to 9,385 ft. in 1937. The Pinedale well is the third deepest in the Rocky Mountain area, being exceeded by one in North Dakota and another in Colorado.

Joe Minton et al's No. 2 Govt., NW NE NE Sec. 28-27n-113w. M.I.M.
Texas Co.'s No. 2-F, SE SW SW Sec. 27-27n-113w. T.D. 933 ft.; cmtd. 8⅝-in. at 884 ft.
Texas Co.'s No. 1-D, SW NE NE Sec. 27-27n-113w. Loc. (first report).
Wyoming Pet. Corp.'s No. 2 Govt., SE cor. Sec. 3-29n-113w. Spdg.
California Co.'s No. 1 Unit 1, C SW NE Sec. 14-31n-109w. Drlg. below 9,775 ft.

Sweetwater County

Sinclair-Wyoming Oil Co.'s No. 87-A, SW SE SE Sec. 3-26n-90w. Drlg. 869 ft.
Mountain Fuel Supply Co.'s No. 1 Mosey, NW NW NW Sec. 18-18n-104w. T.D. 2,610 ft.; recmtd. 8⅝-in.
Wyoming-Calif. Pet. Co.'s No. 2 Govt., CWL NW SW Sec. 24-17n-104w. Drlg. 2,600 ft.

Weston County

Bruce C. Teeter's No. 1 State, SW SW SE Sec. 36-32n-61w. T.D. 1,760 ft.; T. Conv. 1,748 ft.; recmtd. 10-in.; W.O.C.

MONTANA

Carbon County

V. W. Kirk's No. 1 Robinson, SW SW NW Sec. 2-7s-21e. T.D. 5,828 ft.; wtr. at 5,811-22 ft.; cmtd. 7-in. at 5,520 ft.; prep. to perf. and test.

Flathead County

Clark W. Beauchamp's No. 1, CSL SW SW Sec. 2-27n-20e. S.D. 150 ft. to M.I. rig (first report).

Glacier County

Cut Bank had two completions and three new operations.

The Huber-Montana Oil Co.'s No. 3 Government, C NW NW Section 24-37n-5w, North Cut Bank, ¼ mile west of the same company's No. 1 Hinstrager, which was completed for 43,000,000 cu. ft. of gas, proved to be an oil well in two sands. It was drilled to 2,723 ft. The Moulton sand at 2,574-78 ft. tested 55 bbl. in 13 hours through the drill stem. The Sunburst sand at 2,662-2,704 ft. flowed 76 bbl. first 17 hours through the casing. A sand, believed to be the upper Cut Bank, was drilled from 2,714-23 ft. The Moulton sand was cased off with the 7-in. at 2,662 ft. Elevation 3,790 ft.

The Huber-Montana Co. was organized some months ago by the J. M. Huber interests with the expectation of developing a gas supply for a carbon black plant. Two gas wells in the area had shown for large production. However, drilling to develop reserves showed that the area was more promising as an oil than a gas field and when No. 3 Government, an offset to the gasser, came in for oil, the Huber half-interest in the company was sold to the holders of the other interests including Nadeau Brothers, Castle & Pardee and Newell & Chandler. These interests have organized the Spruce Oil Co., with George Nadeau as president, to acquire the combined interests of the older company.

The Glacier Production Co.'s No. 2 Hall, C NE SW Section 35-36n-6w, was completed at 3,044 ft. after plugging back from 3,050 ft. It had 1,000,000 cu. ft. of gas in the Moulton sand at 2,897-2,935 ft., with a good show of oil at 2,925-35 ft. The Sunburst at 2,955-65 ft. was dry. The upper Cut Bank was at 2,980-3,025 ft. with a show of oil at 2,998 ft., the fluid level being 1,200 ft. The lower Cut Bank at 3,025-54 ft. showed an increase in oil and flowed at 3,044 ft. It had a show of water at 3,048-50 ft. and plugged back and is testing.

R. C. Jeffries-Yukon Oil Co.'s No. 1 Clark, C SW NW Sec. 34-35n-6w. R.O.G. (first report).
Texas Co.'s No. 9 Tribal-122, CSL SW SW Sec. 32-33n-5w. Loc. (first report).
Texas Co.'s No. 3 Hessler, C SE NW Sec. 20-33n-5w. Loc. (first report).
A. B. Cobb-T. T. Co.'s No. 1 Bilstad, C NW SE Sec. 4-36n-5w. T.D. 361 ft.; recmtd. 10¾-in. at 230 ft.
Texas Co.'s No. 1 Ammerman, CWL SW SE Sec. 26-36n-6w. Drlg. 233 ft.
Glacier Prod. Co.'s No. 1 Stott, C SE NW Sec. 34-33n-5w. Drlg. 1,665 ft.; Colo. 700 ft.; 10¾-in. 722 ft.
Texas Co.'s No. 2 Bonnet, C SW SE Sec. 8-32n-5w. Cmtd. 10¾-in. at 625 ft.
Glacier Prod. Co.'s No. 2 Barrington, C NW NE Sec. 19-33n-5w. Drlg. 2,100 ft.
M. R. Wagner, Tr.'s No. 2 Tribal-173, NE SE SE Sec. 12-32n-6w. Drlg. 505 ft.
Texas Co.'s No. 8 Morrison, CEL NW NE Sec. 22-35n-6w. Drlg. 2,355 ft.

Teton County

R. C. Tarrant's No. 1 Hoeschen, NE SE Sec. 34-27n-5w. S.D. 2,298 ft. indef.

Toole County

The Big West Oil Co.'s No. 13 Dahlquist, CSL NW NE Section 21-35n-3w, in Kevin-Sunburst, is pumping 25 bbl. per day from the Contact at 1,814-40 ft. after acidizing with 500 gal. It is a completion.

L. J. Yealy's No. 13 Shaw, NE SW SE Section 35-36n-2w, is pumping 20 bbl. of oil and a like quantity of water per day at 1,764 ft. from the contact at 1,756-64 ft.

One new operation was reported.

G. & A. Oil Co.'s No. 14 Goeddertz, CEL SE SW Sec. 23-35n-3w. Drlg. 168 ft. (first report).
S. T. Scotland's No. 3 McNamar, NW NE SW Sec. 29-35n-3w. T.D. 1,380 ft.; fsg.
A. Beardslee's No. 10 Swears, C SW NW Sec. 9-35n-2w. T.D. 1,580 ft.; fsg.
Imperial-Craig's No. 1 Gauss, C SW NE Sec. 18-35n-1w. Drlg. 1,600 ft.
Montana-Dakota Utilities Co.'s No. 1 Krutsfield, C SE SW Sec. 1-33n-1w. Drlg. 1,445 ft.; 1,900,000 cu. ft. gas in Sunburst.
Fraser & Smith's No. 2 Van Note, NE SW NW Sec. 30-35n-2w. Drlg. 970 ft.
Coolidge & Coolidge's No. 1 Maley, SW NE SE Sec. 31-36n-1w. S.D. 100 ft.
Italo Pet. Corp.'s No. 1 Cornett, C SW NW Sec. 30-37n-3w. T.D. 2,305 ft.; ½ bir. O.P.H.; some gas; cmtd. caves; fsg.
Morton & Shaw's No. 1 Ellingson, NE NE NW Sec. 23-35n-3w. S.D. 400 ft.
Kippen O. & G. Co.'s (formerly Lewiston Synd.) No. 1 Solberg, SE SW NE Sec. 20-35n-3w. Drlg. 1,904 ft.; S.O. 1,886 ft.
W. E. Rice Co.'s No. 4 Kearns, Lease 8, C W½ E½ SE Sec. 18-35n-2w. T.D. 1,570 ft.; rng. 6⅝-in.
C. L. Smith, Agt.'s No. 1 Govt., SW SE NW Sec. 13-35n-2w. S.D. 1,345 ft.
R. G. Parrent's No. 1 Holbrook, C NW NE Sec. 2-36n-3w. S.D. 1,370 ft.

UTAH

Grand County

Cane Creek Oil Co.'s No. 2 Shaffer, NW SW SW Sec. 31-26s-21e. Drlg. 3,215 ft.

SOUTH DAKOTA

Harding County

South Dakota State Roy. Co.'s No. 1 State, SW NW Sec. 35-18n-1e. Cg. 5,740 ft.

Southwest Texas District

By
F. L. SINGLETON

Extensions and Discoveries of New Sands Are Features

CORPUS CHRISTI, Tex., Oct. 16.—Extensions and new-sand discoveries in proven fields, and the testing of several wildcats which promise to open new producing areas along the Frio-Vicksburg trend, held the attention of operators in the Southwest Texas district.

The Rincon field, Starr County, was apparently extended 1½ miles southwest as W. R. Davis & Co.'s No. 2 Slick, Survey 528, recovered 630 ft. of pipe-line oil on a 20-minute drill-stem test at 4,176-86 ft. Working pressure built up to 175 lb. Sand and shale showing oil were cored at 4,196-4,221 ft., and at the close of the week the company was preparing to make another test. The well is south of Rowan & Hope and others' No. 1 W. I. Cameron, completed in May at 4,160-70 ft., as the first oil well in the field. W. R. Davis & Co. recently purchased controlling interest in the field and present plans call for an extensive drilling campaign and the construction of a recycling plant. The company's No. 1 Slick is drilling below 4,700 ft., after a 20-minute drill-stem test at 4,183-93 ft., recovered 70 ft. of oil and 80 ft. of salt water.

Midway between the Ben Bolt and South Alice fields, Jim Wells County, Parr & Delaney have taken over H. H. Howell's No. 1-A Lindsay and Reed, a dry hole, and will set casing to test sands recorded by an electrical survey at 4,800-4,950 ft. This well is in the Teresa Bustillas Survey, Lot 21, Section 3, and was abandoned in June at a total depth of 5,740 ft.

Two miles south of the Ben Bolt field, Royal Oil & Gas Co. and others' No. 1 Garcia was abandoned at 6,015 ft. Five-and-one-half-inch casing was recently cemented at 4,460 ft., and several tests made at intervals from 3,900 to 4,300 ft. are reported to have shown 5 lb. of working pressure and various quantities of oil and salt water. It is reported that a second well will be started west of the abandoned hole within a few weeks.

One mile southeast of the Wade City field, Jim Wells County, Rodney Delange and others were preparing to test No. 1 McNeil. This well was drilled to a total depth of 5,410 ft., and 5½-in. casing was cemented at 4,880 ft. The casing will be perforated between 4,784 and 4,790 ft., where a recent drill-stem test showed gas and distillate. The sand section was logged at approximately the same depth as W. R. Quinn's No. 1 Pundt, the discovery well, completed as a distillate producer at 4,794-98 ft.

Location for a 6,500-ft. wildcat was made in the county by H. H. Howell. The well is No. 1 Hinojosa, S. K. & K. Survey, Section 229, about 7½ miles northwest of Premont.

Important extensions and a new sand discovery were marked up for the Ben Bolt field. H. J. Mosser's No. 2 Perales, approximately ⅛ mile northeast of production, perforated casing in a new sand section at 5,414-18 ft., and is flowing an estimated 70 bbl. of oil per day while cleaning out through a 5/32-in. choke. The sand section was cored about 150 ft. lower than the regular pay, and has also been logged in other wells as a gas sand. Production from the regular pay was extended about 2,000 ft. northwest as H. H. Howell's No. 1 G. R. Muzzy is flowing an estimated 15 bbl. per hour while cleaning out through a ⅛-in. choke. The hole is bottomed at 5,251 ft. and the well was completed through perforated casing at 5,198-5,220 ft.

The recently opened Cologne field, Victoria County, received its third gas well as Houston Oil Co. completed No. 1 Emma Martin, 1,300 ft. east of production. The sand section was topped at 2,860 ft., and drilled to a total depth of 2,935 ft. Casing was cemented on bottom, and the well was completed through perforated casing at 2,860-75 ft. Tubing pressure was 1,125 lb. and casing pressure 1,150 lb. The rig was moved ⅛ mile south of the discovery well for No. 1 Ed Dietzel in Lot 29, P. Gallardo Survey.

Interest in Victoria County is centered on J. W. Frazier and others' No. 1 J. W. Booth, a Tertiary Wilcox test in the Indianola R.R. Co. Survey, Section 10. The well is drilling in shale below 6,000 ft. The Discorbis Yeguaensis was topped at 5,319-49 ft., Eponides Yeguaensis at 5,410-41 ft., and the Crockett at 5,777 ft. The search for Wilcox production is one of the most important phases of development in the district. There are three other active tests drilling, and locations for several more are reported planned. In Lavaca County, northeast of the town of Halletsville, Martin Thompson's No. 1 Schumacher topped the Wilcox formation at 6,339 ft., and the well is coring below 6,570 ft. Sand with no oil showing was cored at 6,424-52 ft., and sand with a salty taste was cored at 6,550-70 ft. Southwest of Yorktown, DeWitt County, Marshall Purvis and others' No. 2-B Affiebach is drilling in shale below 6,600 ft. Other active Wilcox tests are Mills Bennett Production Co. and others' No. 1 D. E. Robinson, a projected 8,400-ft. test in the West Tuleta field, Bee County, and Tide Water Associated Oil Co.'s No. 7 Bruni, in the Bruni field, Webb County. The latter well is drilling in shale below 7,103 ft.

Southeast of the town of Agua Dulce, Nueces County, Premont Petroleum Co.'s No. 1 Langham loomed as a dry hole after three production tests showed salt water, mud and a small amount of gas. The hole is bottomed at 7,161 ft., with 7-in. casing cemented at 5,681 ft. The well was tested at 5,615-28 ft.; 5,353-63 ft., and 5,069-79 ft. At the close of the week the perforations were squeezed off and the company was preparing to retest.

In the Odem area, San Patricio County, Seaboard Oil Co.'s No. 1 M. C. Smith tested salt water on a 26-minute drill-stem test through perforated casing at 5,380-88 ft. Casing was cemented several weeks ago to test a series of sands logged by an electrical survey. Previous testing at 7,068-70 ft., 6,996-7,000 ft., and 5,915-25 ft. showed distillate, gas and salt water.

Standard Oil Co. of Texas' No. 1 Jack Casey, the discovery well of the Sejita field, Duval County, is still testing and is showing for a distillate producer although no gages were available. Several gas and distillate sands were logged at intervals from 6,000 to 6,603 ft.

SOUTHWEST TEXAS COMPLETIONS IN PROVEN FIELDS

Aransas County

McCampbell field: Manahan Oil Co.'s No. 5 Carlock, perforated casing 7,144-49½ ft., 75 bbl., ⅛-in. choke.

Duval County

Benavides field: Hiawatha Oil & Gas Co.'s No. 28 Parr, perforated casing 5,432-40 ft., gas well. Chiltipin field: Hawkins & Howell's No. 1 Garcia, perforated casing 4,784-87 ft., gas well. Driscoll field: Continental Oil Co.'s No. 38-A Driscoll, perforated casing 3,346-66 ft., 225 bbl., ¼-in. choke. Hoffman field: Cox & Hoffman's No. 14 Hoffman, perforated casing 2,745-46½ ft., 60 bbl., jetting. Magnolia Petroleum Co.'s No. 45 Well, 2,842 ft., 78 bbl., jetting. Loma Novio field: Humble Oil & Refining Co.'s No. 4-D Welder, 2,830 ft., dry and abandoned. Lundell field: Government Wells Oil Co.'s No. 34 Lundell, sand 1,536-46 ft., 75 bbl., jetting. Piedra DeLumbre field: Magnolia Petroleum Co.'s No. 39 Duval County Ranch Co. sand 2,132-45 ft., 300 bbl., ⅜-in. choke. Southland field: Hiawatha Oil & Gas Co.'s No. 2-A Southland Life Insurance Co., 5,526 ft., dry and abandoned.

Nueces County

Luby field: Sun Oil Co.'s No. 9 McCann, perforated casing 4,349-59 ft., 110 bbl., ⅛-in. choke. Minnie Bock field: Earl Fain's No. 2-B Minnie Bock, perforated casing 3,818-21 ft., 121 bbl., 9/64-in. choke. Texas Conservative Oil Co.'s No. 2 Bock, perforated casing 3,816-20 ft., 112 bbl., ⅛-in. choke. Richard King field: Southern Minerals Corp.'s No. 6-A King, perforated casing 5,366-71 ft., ⅛-in. choke.

Jim Hogg County

Colorado field: Henshaw Brothers' No. 1 Trevino, perforated casing 3,018-25 ft., 85 bbl., 7/54-in. choke.

Jim Wells County

South Alice field: Tom Graham's No. 1-M Bankers Mortgage, perforated casing 5,315-17 ft., 50 bbl., ¼-in. choke.

Live Oak County

White Creek field: Bauer, Holland and others' No. 5 Gayle, perforated casing 1,424-36 ft., 70 bbl., pumping.

San Patricio County

East White Point field: Plymouth Oil Co.'s No. 6 Sparks, perforated casing 5,648-73 ft., 138 bbl., 7/64-in. choke. Plymouth Oil Co.'s No. 1 Sutton, perforated casing 5,633-61 ft., 123 bbl., 7/64-in. choke. Shell Oil Co., Inc.'s No. 5 Kirk, sand 5,606-65 ft., 122 bbl., ⅛-in. choke.

Starr County

South Ricaby field: W. W. Zimmerman's No. 1 Wood, 2,794 ft., dry and abandoned.

Travis County

Kimbro field: J. M. Grimes' No. 3 Pearson, 680 ft., 4 bbl., pumping.

Victoria County

Keeran field: Barnsdall Oil Co.'s No. 5 Keeran, 5,610 ft., 59 bbl., ¼-in. choke.

Webb County

Adami field: Harry E. Poe Oil Co.'s No. 1 Adami, 975 ft., 35 bbl., pumping. West Cole field: V. G. Schimmel's No. 1-B Benavides, perforated casing 2,339-55 ft., 40 bbl., pumping.

Williamson County

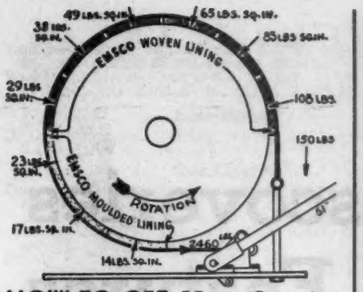
Byersville field: Taylor Refining Co.'s No. 1 Rietmayer, 1,135 ft., dry and abandoned.

Zapata County

Escobas field: Dulup Oil Co.'s No. 3 Trevino, 1,224 ft., 15 bbl., pumping. Mirando Valley field: John F. Camp's No. 2 Hinnant, 1,730 ft., dry and abandoned.

New Jersey Standard Wins Achievement Award

Dr. Webster N. Jones, president of the American Institute of Chemical Engineers and chairman of the committee of award for chemical engineering achievement, announces that the 1939 award will be presented to the Standard Oil Development Co. for its work in developing processes for the large-scale production of new aviation fuels and other synthetic chemical products from petroleum. Presentation will be made on December 4 when the seventeenth National Exposition of the Chemical Industries opens at the Grand Central Palace in New York City.



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Among the Drilling

JOHN F. CAMP DRILLING CO., San Antonio, Tex., has the contract for the development of a large distillate field 26 miles west of Corpus Christi and in Nueces County, South Texas. The deal includes the building of a pipe line, terminal and reforming plant at the ship channel and the development of some 6,000 acres. The syndicate is headed by Clyde Alexander of Dallas, John Sherrin of San Antonio and Robert T. Wilson of Amarillo. The block includes all of the properties held by the Texon Royalty Co. interests between the Agua Dulce field and the Stratton field, most of which is considered proven for distillate in several different sands. A recycling plant with a minimum capacity of 50,000,000 cu. ft. per day will be erected on the land to handle the distillate from the 10 or more wells to be drilled. Camp Drilling Co. will drill the wells. The contracts for the recycling plant and the pipe line have not been let. Production is expected from zones ranging in depth from 6,400 to 6,900 ft.

GEORGE LIVERMORE, drilling contractor and independent operator of Odessa, Tex., is planning a deep wildcat test for the northern Permian basin area of West Texas in the southern part of Hockley County. Plans have not yet been completed, but tentative location has been made for his No. 1 R. D. Glimp, 330 ft. from the north and east lines of the south 320 acres of Section 8, Block X, P.S.L. Survey. The test will be drilled to 5,200 ft. and is on a large block which extends into Terry County on the south.

WALTER GANT, drilling contractor and independent operator of Wichita Falls, Tex., has the contract to deepen a closely watched wildcat test in the western part of Montague County, North Texas. It is Continental Oil Co. and S. J. Sackett's No. 1 Brown, Section 58, E.T. Survey, 7 miles north of the town of Bowie. Shut down for several weeks at a total depth of 5,049 ft., the contractor, reported to have acquired the interests of S. J. Sackett in the wildcat, will carry it to the Bend lime expected between 6,300 and 6,500 ft.

MID-UNION DRILLING CO., Tulsa, together with Frabor-Hodges Oil Corp., also of Tulsa, will drill a wildcat test in western Clay County, North Texas. It will be contracted to 5,000 ft. and will be about a mile southeast of the same operators' new discovery on the L. Kinder lands, Lot 11, Block 2, Clark & Plumb Survey, which was completed for 157 bbl. of oil daily from 4,120 to 4,160 ft. The new wildcat is No. 1 L. C. Scaling, located 330 ft. south and east of the southeast corner of Lot 3, Block 2, Clark & Plumb Survey, but in Block 8, G. P. Meade Survey, Abstract 928. It is also southwest of the recently discovered Burns pool.

GEORGE ECHOLS received a contract from Titanic Oil Co. for a 6,000-ft. test on the southeast flank of the Allen dome, in Brazoria County, Texas. The rig has been set up on the S. E. Allen lease, and the well will be spudded this week.

ROWAN DRILLING CO. completed its first producer in the Lovells Lake field, Jefferson County, Texas, with the completion of No. 1 Bordgages. The well was completed through perforated casing in the 7,800-ft. sand, and on a 24-hour gage flowed 182 bbl. through ⅛-in. choke.

J. W. FRAZIER is nearing the Tertiary Wilcox formation in No. 1 J. W. Booth, a projected 8,400-ft. wildcat in the Fordtran area, Victoria County, Texas. The well is being drilled jointly with Wellington Oil Co.

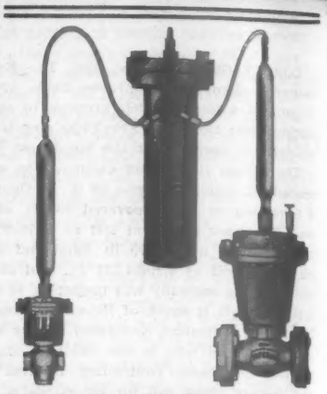
O. W. DYER has completed No. 1 Humphrey in the Hardin field, Liberty County, Texas, as a producer, and the rotary is being moved over for No. 2 Humphrey.

OWNBY DRILLING CO. has drilled to a total depth of 4,253 ft. in its No. 1 A. R. Hinojosa, a wildcat, 3 miles east of the Hoffman field, Duval County, Texas.

ALLEN & MORRIS received contract from Agua Dulce Oil Co. for No. 5 Purl, in the Agua Dulce field, Texas, where another rotary is operating for the Process Oil Co. In the East White Point field, San Patricio County, 5½-in. casing was cemented at 5,600-ft. in Allen & Morris No. 3 Baldwin. Another operation is reported in La Rosa field, Refugio County, for Coronado Corp.

H. H. HOWELL is moving a rotary 7½ miles northwest of Premont, Jim Wells County, Texas, for No. 1 Hinojosa, a projected 6,500-ft. wildcat located in Section 229, S.K.&K. Survey.

SIMPSON - ROODHOUSE Drilling Co., Ada, Okla., is drilling below 2,853 ft. at No. 1 McKoy in SW NE Section 1-2n-7e, near Stonewall, in Pontotoc County, Oklahoma. A drill-stem test



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made at 2,789 ft. yielded no favorable results. This same organization has a derrick up at No. 1 Hale, SW NW SE Section 34-2n-7e in the Fitts pool, Pontotoc County, Oklahoma.

FAIN DRILLING CO. is conditioning the mud and cleaning out the hole after drilling out cement at Continental Oil Co.'s No. 1 Proctor, NW¼ Section 28-10-20w, Washita County, Oklahoma. The bottom of the hole is at 14,540 ft.

ZEB DRILLING CO. has been drilling in shale below 4,618 ft. at No. 1 Highland, NE NW SW SE Section 26-12-3w, Oklahoma County, Oklahoma.

KIRK-GREEN-WAY, INC., Tulsa, is drilling below 2,890 ft. at No. 1 Doran, NW SW Section 32-19-2e, north of the Ramsey pool in Payne County, Oklahoma.

C. C. NELSON DRILLING CO. had 400 ft. of oil in the hole from the chat at 3,345 ft. at No. 1 John Malm, NE NW Section 25-20-6w, in the Bornholdt pool of Rice County, Kansas.

ARROW DRILLING CO., Tulsa, has cemented No. 1 Balke in the Kinmundy area of Illinois. This organization recently completed a well on the Chitwood property of Magnolia Petroleum Co. in the Salem, Illinois, area, and a well known as No. 1 Bump in the Keensburg area, Illinois.

OSAGE DRILLING CO., INC., of Oklahoma has recently completed No. 1-A Tippett, section 266, Block G, W.T.R.R. Survey, in Gaines County Texas. This well was drilled on acreage recently secured in a farmout from Ohio Oil Co. Osage is also drilling its No. 1 Johnson in SE¼ Section 268, Block G, W.T.R.R. Survey, in Gaines County, Texas. This well is also being drilled on acreage secured on farmout from Ohio Oil Co. The latest reports are that No. 1 Johnson is running about 50 ft. higher than the company's No. 1 Miller (dry), three-quarters of a mile northwest. Osage is also drilling its No. 3 Lynn well in Section 770, Block D, John H. Gibson Survey, Yoakum County, Texas. This is the third well drilled by Osage on the Lynn acreage, which it secured from the Shell Oil Co., Inc., on farmout.

E. F. NEELY, Shreveport oil operator, is moving a rotary rig into Andrews County, Missouri, to drill a wildcat for Derby Oil Co., of Wichita, Kans. The test will be drilled on a block assembled from geological data of the Derby, and is about 20 miles northwest of St. Joseph, near the town of Fillmore. The test is contracted to go to the St. Peter sand.

TRINITY DRILLERS, INC., is testing a prospective pool opener in Victoria County, Texas. The well was drilled jointly with John Mayo and is located about 15 miles south of the town of Victoria, on the T. C. Edwards lease. The hole is bottomed at 6,006 ft. and casing was cemented to test a series of sands which showed up favorably in an electrical survey.

Derrick floor, Barnsdall Oil Co.'s No. 23-A McFaddin, McFaddin field, Victoria County, Texas. Charles Jacobson, general superintendent, South Texas and Louisiana; Barnsdall Oil Co., Victoria, Tex.; Herbert Voss, tool pusher; J. Brantley, production clerk

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Eastern Field Report

By STAFF CORRESPONDENT

Wildcat Gasser in Jackson County, W. Va. in Oriskany

PITTSBURGH, Pa., Oct. 10.—A new Oriskany gas pool is indicated by the commercial volume found in the wildcat test being completed by Columbian Carbon Co. on the John F. Parsons farm in Ripley district, Jackson County, West Virginia. With the Oriskany sand topped at 5,066 ft., the first gas pay was struck at 5,070 ft. and produced 1,724,000 cu. ft. a day. Drilling was continued 37 ft. in the sand and the volume fluctuated between 1,390,000 and 2,000,000 cu. ft. a day, being retarded by freezing at the sand. It has not been shot.

The test is 3 miles north 70° east of the town of Ripley and 2½ miles north 45° east of the Oriskany test on the T. W. Chancey farm which failed to find commercial production. The test has a surface elevation of 797.7 ft. which places the Oriskany sand 4,268.3 ft. subsea. Corniferous lime was topped at 4,959 ft. and casing was set at 4,970 ft.

In Pennsylvania another well is starting on Chestnut Ridge in Fayette County and it will be the second test of Wasson & Co. on the J. H. Sorg farm in North Union Township. It is about 850 ft. west of No. 1, which was bottomed in the Oriskany sand with over 2,500,000 cu. ft. of gas a day from the Onondaga limestone and the Oriskany sand.

SOUTHEAST OHIO

In Athens County F. H. Gifford completed a 20-bbl. well on the John Parmeeter farm in Section 30, Rome Township, in the first Cow Run sand at 393 ft. In the same section Gross and McCune completed a second test on the Grant Antle farm in this formation at 377 ft. which produced 15 bbl. the first day after shot. In this section G. & K. Oil & Gas Co. completed No. 4 John M. Felton at 472 ft. in the first Cow Run sand, and it produced 5 bbl. the first day after shot. Same operator completed No. 4 Vandyke at 383 ft. and it produced 5 bbl. the first day.

In Licking County McClay Brothers completed No. 5 Emmet and Olivia Hoover, Section 3, Perry Township, in Clinton sand at 2,878 ft. and it produced 30 bbl. the first day after the shot. It had been a gas well and was deepened in the sand. In Newton Township, Ray Penick completed a gas well on the Fred Eshelman farm, Section 18, in Clinton sand at 2,580 ft. It gaged 360,000 cu. ft. a day. In the NW¼ Section 12, Fallsbury Township, Kundtz-Hulse, Inc., and others drilled a dry hole on the Madison Billman 72 acres through the Clinton sand to 3,115 ft.

In Madison Township, Licking County, Ohio Fuel Gas Co. completed a gasser on the D. J. Jones farm, Section 6, in Clinton sand at 2,590 ft. and it is good for 2,000,000 cu. ft. a day. In Section 23, same township, Harry Rexroth completed No. 2 S. E. Walpole, in Berea sand at 781 ft. It will make a ½-bbl. pumper.

In Medina County Preston Oil Co. completed No. 35 Bertha B. and J. J. Parent, Lot 5, Tract 16, Chatham Township, in Berea grit at 403 ft. It produced 55 bbl. the first day after shot.

In Muskingum County Atha Oil Co. completed an 8-bbl. well on the G. B. Gibson farm in Section 16, Union Township, in Niagara lime at 3,126 ft.

In Perry County Ohio Fuel Gas Co.'s test on the L. Powell farm in Section 28, Monroe Township, drilled through Clinton sand to 3,827 ft., or 70 ft. below the sand and it had no showing of oil or gas.

In Washington County E. A. Metcalf No. 2 and others completed a 2-bbl. well on the G. C. Hendershot farm in Section 22, Liberty Township, in Keener sand at 1,295 ft.

SOUTHWEST PENNSYLVANIA

In Center Township, Greene County, Pennsylvania, Morgan Henderson, agent, completed No. 4 J. L. Metz (Weir farm) at 3,084 ft. with gas and oil at 3,060-65 ft. and oil at 3,074 ft. It is rated at 50 bbl. the first day.

Armstrong County

In Boggs Township, Armstrong County, John Wray and others finished a small gas well on the William Mateer farm in Hundred Foot sand, total depth 1,365 ft., with a final gage of 70,000 cu. ft. a day.

In Kiskiminitas Township Broman and Dorcey Drilling Co., on the M. M. Martin farm, deepened a well from 3,400 ft. to 3,710 ft. and it was dry. Apollo Gas Co. is down 1,475 ft. on the J. P. Wilson farm with Hundred Foot sand at 1,375 ft. and about 330,000 cu. ft. of gas at 1,475 ft.

In Cowanshannock Township, the Equitable Gas Co. is drilling at 2,067 ft. in No. 1 D. W. Raraigh. The T. W. Phillips Oil & Gas Co. is rigging up the No. 3 William Harkleroad. The Louden Drilling Co. is moving in to deepen No. 1 A. G. Schaeffer. The Peoples Natural Gas Co. is drilling at 600 ft. in William Small test and 190 ft. in France Hackleroad test.

In South Bend Township Sheiocta Oil & Gas Co. is hauling material onto the Harve Reefer farm. In Kittanning Township Judson and others abandoned deepening No. 1 W. J. Gray and are starting a new hole 200 ft. east of it.

Clarion-Westmoreland-Fayette-Indiana

In Clarion County Squirrel Hill Gas Co. completed No. 2 N. A. Sloan, in Clarion Township, at 3,016 ft., good for 50,000 cu. ft. of gas per day from Speechley sand.

In this township, Burnham Gas Co. is drilling at 2,350 ft. in the Charlotte Slater test with about 33,000 cu. ft. a day showing from Speechley sand. In Piney Township, the T. W. Phillips Gas & Oil Co. is drilling at 543 ft. in the test on the John Rankin farm. In Red Bank Township, the Owens-Illinois Glass Co. is building a rig for a test on the Lewis Keck farm.

In Indiana County T. W. Phillips Gas & Oil Co. completed a small gas well on the James Johnston farm in Washington Township at 3,638 ft. with the first Bradford sand at 3,040-3,110 ft. In White Township, same company completed a small gas well on the Diltz farm at 1,419 ft. in the Hundred Foot sand.

In Fayette County Duquesne Gas Co. completed its second well on the Andrew Demaske farm in Nicholson Township at 2,477 ft. with the Fifth sand at 2,375-2,466 ft. and about 278,000 cu. ft. of gas a day at 2,377 ft.

Washington County

In West Bethlehem Township, Washington County, Wherry and others completed a fair gas well on the Weir heirs farm at 1,577 ft. for 2,400,000 cu. ft. of gas a day at 1,570 ft.

Deep Tests

In Armstrong County Peoples Natural Gas Co. is deepening on the Lowry Martin farm in Wayne Township after passing through the Oriskany horizon and has reached 6,829 ft. In Butler County South Penn Oil Co. is deepening on the M. A. Fowler heirs farm in Concord Township, after passing through Oriskany sand which was bottomed at 5,460 ft.

On Chestnut Ridge in Fayette County, New Penn Development Co., William E. Snee and others are fishing at 6,120 ft. on the Piedmont Coal Co. lease in North Union Township, after a crooked hole caused a lost bailer. It was apparently drilling in the Tully lime. In Maryland these operators are drilling at 1,350 ft. on the Humberson farm on the Accident dome in Garrett County.

WEST VIRGINIA

In Calhoun County, West Virginia, Creed Yoak completed the test on the W. H. Vincent farm in Washington district in the Salt sand at 1,656 ft. and it is good for 5 bbl. a day.

In Cabell County United Fuel Gas Co. completed No. 4857 Cynthia Lucas in McComas district at 3.344 ft. It gaged 220,000 cu. ft. a day, 24 hours after a shot, and has a rock pressure of 430 lb.

In Gilmer County Bowser and Meyer, on the W. M. Bentley farm in DeKalb district, drilled through the Injun sand to 2,345 ft. and it was dry.

In Clay County Pittsburgh & West Virginia Gas Co. completed the test on the J. L. Caldwell Co. lease in Otter district at 1,602 ft. in slate, and it is gaging 3,499,000 cu. ft. a day. In Henry district Thompson Gas Co. completed No. 39 Albert Wyant at 2,145 ft., Injun sand, and it gages 50,560 cu. ft. a day.

In Lewis County McCall Drilling Co. completed a small gasser on the Lillie Brannon farm in Freemans Creek district at 1,680 ft. It gaged 70,000 cu. ft. a day.

In Putnam County Dennis Roy and others on the G. L. Paul farm in Curry district finished in the Big lime at 1,900 ft. and the well has a volume of 82,000 cu. ft. a day, but it will be acidized.

In Ritchie County L. E. and W. H. Mossor's No. 2 Beulah P. Adams in Murphy district, was completed at 2,225 ft., the Injun sand, and it is a gas well gaging 500,000 cu. ft. a day. Clem S. Morris completed No. 3 W. E. Cox in Injun sand at 2,018 ft. and it gaged 160,000 cu. ft. a day.

In Roane County the Clendenin Gas Co. completed No. 2 Coy Westfall in Harper district at 1,445 ft. with the Salt sand topped at 1,422 ft.; and gas gaging 1,000,000 cu. ft. a day at 1,432-42 ft.

In Wirt County S. W. Douglas drilled a dry hole on the A. R. Mackintosh lease in Spring Creek district through the Injun sand to 2,300 ft.

Oriskany Gas Field

In the Oriskany gas field in Kanawha County United Fuel Gas Co. completed a gas well on the E. U. Dawson farm in Poca district at 4,880 ft. with Oriskany sand at 4,862-77 ft. and a final gage after shot of 10,116,000 cu. ft. a day. Same company's gasser on the A. A. Beane lease, total depth 4,856 ft., and sand 4,821-28 ft., gaged 5,840,000 cu. ft. a day.

In Poca district Spartan Gas Co. completed a gas well on the J. S. and E. D. Newhouse farm at 4,975 ft. with a final gage of 2,090,000 cu. ft. a day.

Outside Deep Tests

In Ripley district, Jackson County, and a continuation of the Kanawha County gas pool, Everett Starcher and others' test on the Roy O. Pfost farm was finished at 5,033 ft. with Oriskany sand at 4,994-5,028 ft. It produced 437,000 cu. ft. of gas while drilling through the sand, and after a shot gaged 8,739,000 cu. ft. a day.

In Washington district the Columbian Carbon Co. is drilling at 235 ft. in the Putnam Co. test and at 1,308 ft. in the Helen M. Hoge test. The United Fuel Gas Co. is down 5,047 ft. in No. 4854 Sarah Jane Lanham, and 1,401 ft. in No. 4860 Monroe Jones and others. The United Carbon Co. has reached 4,040 ft. in the W. W. Riley and others test.

In Ravenswood district, Jackson County, Joe Rubin and others are drilling at 132 ft. in the Corniferous lime in the test on the Gilbert Starr farm, with no report of sand or production. It is about 145 ft. lower than the test on the Ohio River.

California Field Report

By L. P. STOCKMAN

Deep Test Between Coalinga Fields Cores Gatchell Sand

LOS ANGELES, Calif., Oct. 16.—The most important development in California during the past week was the coring of Gatchell oil sand at 8,366 ft. in No. 64-30-B of Wilshire-Annex Oil Co. about midway between the Northeast and Southeast Coalinga fields in Section 30-19-16. No. 64-30-B is north of the Southeast Coalinga field discovered by Petroleum Securities Co. and south of the Northeast Coalinga field discovered several months ago by Amerada Petroleum Corp., and the logging of the prolific Gatchell oil sand tends to indicate the possibility that there may be an affinity between these two productive areas. The well is about midway between the two highly productive areas which are about 4 miles apart.

The importance of this find by Wilshire-Annex Oil Co. can not be over emphasized as the Gatchell sand because of its abnormally high saturation, porosity, and permeability should rank with the most prolific oil sand found anywhere in California. Engineers are using a probable ultimate recovery of 75,000 bbl. per acre and consider this figure as conservative. This recovery is very high for San Joaquin Valley fields but, on the other hand, the Gatchell zone in the Southeast Coalinga field ranges all the way from 150 ft. to 600 ft. in thickness with the average around the top of the structure approximating 350 ft. This thickness of oil sand alone indicates long-lived production but on top of that the oil sand is highly saturated further increasing ultimate production. Wilshire-Annex Oil Co. is a subsidiary of Wilshire Oil Co., large independent producer, refiner, and marketer with a modern refinery including Dubbs cracking units at Norwalk in Los Angeles Basin. Other operating subsidiaries include Bandini Petroleum Co. and Ambassador Oil Co. Adjacent to No. 64-30-B, Wilshire-Annex Oil Co. has leases on 120 acres and Bandini Petroleum Co. holds leases on 40 acres adjoining the well and another 80 acres to the north. Standard Oil Co., as a result of the acquisition of fee-owned properties of Pacific Oil Co. several years ago, owns an entire section of land aggregating 640 acres just north of Bandini Petroleum's holdings.

Coalinga District

In the Southeast Coalinga field, Standard Oil Co. completed No. 86-13 C fee this week flowing 1,832 bbl. of 31.3-gravity oil and 1,305,000 cu. ft. of gas per day from the Gatchell zone with bottom of the hole at 7,454 ft. This new well was brought in flowing through a 30/64-in. bean and showed a tubing pressure of 950 lb. and a casing pressure of 1,360 lb. indicating that the well is capable of greatly exceeding its initial. No. 86-13-C was finished with a 7-in. water string cemented at 6,987 ft. and 497 ft. of 5-in. liner landed at 7,449 ft. and perforated at 7,050-7,449 ft. The tubing was 7,395 ft. of 2½-in. Top of the Kreyenhagen was cored at 5,825 ft., top of the green sand was logged at 6,943 ft., and top and base of the Gatchell zone was reached at 7,040 ft. and 7,442 ft., respectively. The well is located along the east line of Section 13-20-15 and has an elevation of 765 ft. above sea level.

E. A. Parkford, having abandoned his No. 1 in Section 24-20-15 south of the Southeast Coalinga field, is leaving the district but may enter the area between the Northeast and Southeast fields that now appears to have been proved up by Wilshire-Annex Oil Co. R. S. Lytle, operating for former stockholders of Petroleum Securities Co., Seaboard Oil Co., and Honolulu Oil Corp., has staked location for No. 5-17-F in Section 7-20-16, and if this well results in commercial production it will extend the productive limits of the Southeast Coalinga field about 900 ft. northwest. This well is due west of Superior Oil Co.'s Coalinga fee property on which several excellent flowing wells have been completed. Universal Consolidated Oil Co. is about ready to spud No. 81-24-C in Section 24-20-15. This well is north of Parkford's southern outpost which picked up a few feet of oil sand in the top of the Gatchell zone and was subsequently abandoned as unproductive at 8,240 ft. The Universal Consolidated officials are of the opinion that the Gatchell thickens to the north and that the few feet found by Parkford should be found commercially productive on its property. In the Northeast Coalinga field Amerada Petroleum Corp., Bandini Petroleum Co., Standard Oil Co., Superior Oil Co., and Union Oil Co. are making preparations to start new wells in the immediate future.

Montebello

Star Petroleum Co. extended the southern limits of production in the Montebello field of Los Angeles Basin this week by completing No. 1 Community flowing 720 bbl. of clean 35.4-gravity oil and 800,000 cu. ft. of gas per day from the La Merced zone with bottom of the hole at 7,590 ft. This new flowing well is almost a block south of Beverly Boulevard and it is at present the most southerly producing well in the field. That the oil is relatively clean indicates that the southern limits of production have not yet been reached. No. 1 Community has a 7-in. water string cemented at 7,500 ft. and was finished "barefoot." That this well would show good production was indicated late last week when a formation test at 7,500-90 ft. resulted in a natural flow at the rate of 500 bbl. per day. It appears probable that several additional wells will be started south of Beverly Boulevard soon in as much as this area is now proved up by this new well. Heretofore operators have located wells as close to Beverly Boulevard as possible in order to get as close as possible to the axis and thus avoid running into edgewater. No. 1 Community of Star Petroleum Co. has extended the southern limits about 300 ft. south of Beverly Boulevard and has thus opened up considerable additional acreage for development. If operators now having drilling or producing wells along Beverly Boulevard drill a second line it will mean the starting of 20 additional wells.

Early this week Jack McKeon completed No. 1 Travis flowing 490 bbl. of clean 35.8-gravity oil and 1,000,000 cu. ft. of gas daily from the La Merced zone with bottom of the hole at 7,625 ft. This new well was finished with a 7-in. water string cemented at 7,445 ft. and 224 ft. of 5½-in. liner landed at 7,624 ft. and perforated at 7,438-7,624 ft. No tubing was run in the hole and while the well was brought in flowing through a 32/64-in. bean current production has subsequently increased notwithstanding that the bean has been reduced to 24/64-in. In the east Montebello area where operators developed flush but short-lived production in the Miocene a few years ago, Universal Consolidated Oil Co. and Richfield Oil Corp. have abandoned No. 1 Joint on the Nutt lease. This property was drilled jointly by these two companies as the result of a compromise whereby Universal Consolidated Oil Co. split up its leases with Richfield Oil Co. and the latter returned Universal Consolidated Oil Co.'s stock to its treasury.

Wilmington

Drilling operations have shown a slight increase in the Wilmington field but this gain is only temporary and to be expected from time to time. General Petroleum Corp. completed No. 13 S. P. flowing 582 bbl. of clean 18.6-gravity oil per day from the Ranger zone with bottom of the hole at 2,950 ft. This new well was brought in flowing through a 32/64-in. bean, was finished with an 8⅝-in. water string cemented at 2,565 ft., and 435 ft. of 6⅝-in. liner landed at 2,950 ft. and perforated at 2,560-2,950 ft. Initial production was through a 32/64-in. bean, later reduced to 12/64-in. Royalty Service Corp. recompleted No. 2-B Santa Fe, flowing 195 bbl. of clean 29.5-gravity oil per day through a 20/64-in. bean from the Ford zone at 5,713 ft. This well, a former upper-zone producer, is in the

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	October 7		October 1			
Intercoastal-domestic—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	771,206	852,826
Fuel oil	74,080	10,583	65,970	9,424	1,819,073	.....
Diesel and gas oil	.....	.....	.....	.....	163,501	.....
Gasoline	97,191	13,899	.....	.....	2,718,404	2,437,678
Kerosene	.....	.....	.....	.....	194,850	257,005
Foreign exports—						
Crude oil	58,474	8,353	413,179	59,026	11,687,169	17,244,454
Fuel oil	217,810	31,116	351,813	50,259	7,160,672	6,996,247
Diesel and gas oil	94,373	13,482	179,614	25,659	5,891,481	4,882,907
Gasoline	.....	.....	448,802	64,115	6,016,551	5,946,771
Kerosene	.....	.....	.....	.....	1,295,701	852,318
Lubricants	.....	.....	.....	.....	127,367	173,388
Coastwise-domestic—						
Crude oil	306,197	43,742	229,604	32,801	9,914,929	9,349,548
Fuel oil	409,080	58,440	222,931	31,847	7,936,604	9,088,990
Diesel and gas oil	50,212	7,173	53,398	7,628	1,772,864	1,214,592
Gasoline	429,165	61,309	607,247	86,750	13,016,902	11,650,042
Kerosene	18,744	2,678	15,257	2,180	384,768	202,369

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Fuel oil	.....	.....	.....	.....	124,055	.....
Diesel and gas oil	.....	.....	.....	.....	69,550	196,644
Gasoline	.....	.....	.....	.....	.....	25,409
Kerosene	.....	.....	.....	.....	68,954	16,124
Asphalt	.....	.....	.....	.....	425,845	490,039
Lubricants	.....	.....	5,336	762	24,870	16,905
Foreign exports—						
Crude oil	.....	.....	267,467	38,210	4,317,590	4,486,735
Fuel oil	.....	.....	180,895	25,842	2,308,756	2,127,889
Diesel and gas oil	.....	.....	7,202	1,029	2,134,716	2,219,422
Gasoline	.....	.....	158,602	22,657	2,517,747	4,502,574
Kerosene	.....	.....	6,973	996	404,242	696,099
Asphalt	.....	.....	.....	.....	14,151	58,258
Lubricants	.....	.....	3,060	437	445,989	404,538
Other finished oil	.....	.....	.....	.....	469	.....
Coastwise-domestic—						
Fuel oil	64,711	9,244	129,355	18,479	5,126,428	4,667,818
Diesel and gas oil	14,076	2,011	29,645	4,235	1,004,503	1,198,355
Gasoline	98,478	14,068	111,308	15,901	6,344,869	6,170,378
Kerosene	30,212	4,316	9,214	1,316	701,516	430,867

townlot section of the Wilmington field where the Ford zone has not been especially productive. No. 2-B Santa Fe was redrilled and deepened to 5,713 ft. and finished with a 10¾-in. water string cemented at 2,634 ft. and a 6⅝-in. liner landed on bottom and cemented through perforations at 5,636 ft. The liner was surface perforated at 5,636-5,713 ft. and after being run in the hole and cemented it was gun perforated at 5,084-5,121 ft., 5,251-70 ft., 5,287-92 ft., 5,327-62 ft., 5,458-72 ft., and at 5,531-37 ft.

The new wells started in the Wilmington field during the past week are rather well scattered through the field and from present indications several additional wells will be started in the near future. Richfield Oil Corp., after a suspension of several months, has erected a new rig for No. 32 Pacific Dock, and Brookline Oil Co. is starting two more new wells immediately. Brookline carried No. 4 Harbor down for a test of the Ford zone but found it unproductive this week and has plugged the hole back from 5,760 ft. to 3,690 ft. and will complete it at this depth at once. After being plugged back the company ran in a 6⅝ in. liner carrying perforations at 2,935-3,050 ft., 3,130-60 ft., 3,350-3,585 ft., and at 3,605-70 ft. Long Beach Oil Development Co., developing municipally-owned properties for the Long Beach Harbor Department, is running eight strings of tools and should have two or three of this group on production within a few days. Union Pacific Railroad Co. is also stepping up the rate of development but will probably keep five strings of tools working between now and the end of the year.

The way was cleared last week for development of the Los Angeles County Flood Control Channel in the east side of the Long Beach Harbor section of the Wilmington field when Superior Judge Vickers signed his judgment and findings on a suit instituted several months ago by Continental Oil Co. Last August Judge Vickers indicated that he would issue an injunction prohibiting the city of Long Beach from preventing development of the acreage in question. The court held that the zoning ordinances of the city of Long Beach prohibiting drilling were unfair, arbitrary, and discriminatory in as much as drilling and producing activities were permitted on adjacent property. At the time the Long Beach Harbor section of the Wilmington field was opened up for development the voters of the city decided that no drilling should be allowed east of the west bank of the Los Angeles County Flood Control Channel thus preventing drilling inside the 60-ft. channel. Drilling operations have been completed on a number of properties west of the Flood Control Channel and thus it is generally regarded as proved up for production in the Ranger zone. The Terminal and underlying Ford zone do not extend this far east but good production can be expected along the 60-ft. strip that extends from Seventh Street southward to the ocean in the Ranger zone at a low cost.

Cole's Levee

Tide Water Associated Oil Co. extended the productive limits of the Cole's Levee field of Kern County about 1,500 ft. east late last week by completing No. 81 Kern County Land in Section 14-31-25 flowing about 500 bbl. per day from the Stevens sand with bottom of the hole at 10,120 ft. Production had not yet cleaned up at last reports and consequently the well's output may show an increase after the well has been on production for a little longer. This well is the deepest as well as the most easterly well in the Cole's Levee field. It is likewise the lowest well structurally in the field at present. No. 81 Kern County Land is producing from about 127 ft. of oil sand as the top of the pay was logged at 9,970 ft. and the bottom at 10,097 ft. Below the latter depth the bit went into a gray sand that may be found to carry water. This should be determined definitely within the next few days. The hole was finished with a 7-in. water string landed and cemented at 9,941 ft. The possibility that the Tupman and Cole's Levee areas might consist of one large field remains undetermined and will continue to be of an enigmatic nature until additional wells are drilled in the intervening area.

Los Angeles Basin

The area south of the Rosecrans field has cooled off decidedly during the past 2 weeks and it will take a good well to revive interest to an extent sufficient to stimulate additional development. This area has been very spotted and most wells completed in the area to date have shown a rapid decline after showing a rather small initial. During the current week, Southern California Petroleum Co. completed No. 1 Slabaugh flowing 170 bbl. of 32.4-gravity oil cutting 3 per cent through a 40/64-in. bean from the equivalent of the O'Dea zone with bottom of the hole at 7,630 ft. This well was finished with an 8⅝-in. protection string landed at 6,390 ft. and 1,344 ft. of 5¾-in. liner landed at 7,630 ft. and carrying perforations at 7,630-8,440 ft. The liner was cemented through perforations at 7,440 ft. and the well finished with 7,607 ft. of 2½-in. tubing. No. 1 Darling of Barnsdall Oil Co. and Wilshire Oil Co. drilled by the former as a joint undertaking will either stimulate further interest in the area or cool it off more. This well is down 8,957 ft. and has a 7-in. water string cemented at 8,732 ft. This string will be perforated and tested out within the next few days.

Ten Section—Greeley

Shell Oil Co., Inc., completed an excellent flowing well in the Ten Section field of Kern County last week when No. 72-25-A Kern County Land in Section 25-30-25 was brought in flowing 2,822 bbl. of very clean 34.5-gravity oil per day from the Stevens zone with bottom of the hole at 8,200 ft. This well was finished with a 7-in. water string cemented at 7,980 ft. and a 5½-in. liner hung at 8,196 ft. No. 72-25-A Kern County Land is located in the west side of the Ten Section field inside the proved productive area. In the Greeley field of Kern County No. 12-6 Kern County Land of Standard Oil Co. in Section 30-29-26 and which was completed July 16, 1939, flowing 3,800 bbl. of 37.1-gravity oil per day from 11,941 ft. has gone to water and thus the importance of this well remains to be determined. Present production is 250 bbl. of fluid of which 75 per cent is salt water. At the time it was thought that No. 12-6 Kern County Land had discovered a new productive field southwest of the Greeley field but now engineers are not certain about the area. The well failed to find the Stevens zone but was finished in the Rio Bravo or Vedder horizon.

After finishing No. 12-6 Kern County Land, Standard moved back into No. 12-5 Kern County Land located northwest of the Greeley field in an attempt to duplicate the discovery in No. 12-6 but has not yet

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reached the point where the Rio Bravo zone is expected. Standard Oil Co. is still held up in No. 1 Ross in Section 20-29-26 with mechanical trouble at 10,456 ft. and is at present milling on junk. This well was suspended when first drilled when it failed to find the Stevens zone but when deeper drilling later proved up the existence of substantial production in the Rio Bravo zone the company decided to deepen the hole. Standard is drilling two other wells in the Greeley field, one of which, No. 11-20 Kern County Land, may be carried down to the Rio Bravo zone. The Stevens sand which has been found so highly productive in the Ten Section field by Shell Oil Co., Inc., has proved very satisfactory in the Greeley field although the large production developed in the Rio Bravo zone at Greeley more than makes up for this deficiency. No deep exploratory wells have yet been drilled in the Ten Section field and thus it is not definitely known whether the deep Rio Bravo zone underlies the present productive Stevens zone. There is no geological reason why the Rio Bravo zone should not underlie the Stevens sand in both the Ten Section and Canal fields in which event Shell Oil Co., Inc., and Ohio Oil Co. will substantially increase their producible reserves in California.

Kern County

In the Fruitvale field of San Joaquin basin, Western Gulf Oil Co. has completed No. 43-B Kern County Land in Section 22-29-27 flowing 81 bbl. of 21.4-gravity oil cutting 4 per cent from 3,826 ft. and started preparations to begin work on No. 44-B on the same lease. This new well was finished with an 8⅝-in. water string cemented at 3,758 ft. and 132 ft. of 6⅝-in. liner landed at 3,824 ft. and carrying perforations at 3,739-3,824 ft. Top of the pay was logged at 3,701 ft. and the well was brought in flowing through a 24/64-in. bean with very little back pressure. In the Mount Poso field of Kern County Chevalier Oil Co. has completed No. 4 Southern Pacific in Section 3-27-28 pumping 126 bbl. of 15.6-gravity oil cutting 3 per cent from 1,501 ft. This well, which was carried down to 1,506 ft. and then plugged back to the completion depth because of bottom water was finished with an 8⅝-in. water string cemented at 1,475 ft. and 30 ft. of 6⅝-in. liner landed at 1,501 ft. and perforated at 1,481-1,501 ft. Top of the productive Vedder zone was cored at 1,475 ft. at which point the water string was landed.

Drilling and production activities in the San Joaquin Valley have reached a low ebb due probably to uncertainty over the Atkinson Oil Control bill which will be voted on at the special election November 7, 1939. Exploration work has declined along with drilling operations in proved fields and while additional wildcat leases are being taken prospectors are not as active as heretofore. Meridian Oil Co., which recently drilled a deep test in the east end of the Fruitvale field of Kern County, has decided to resume drilling in the hope of finding a deeper productive zone. This well, in Section 23-29-27, is being cleaned out at 7,932 ft. preparatory to being deepened. The formation test on the Vedder zone in this well showed salt water. There is still chance of finding the lower Vedder zone or possibly an equivalent. In the Bellevue section of Kern County Continental Oil Co. has reached a depth of 13,850 ft. but has not yet found the Rio Bravo zone. It is the present intention to make an additional small amount of hole and then hang up tools if nothing is found in the meantime.

Coastal District

In the Ventura Avenue field Shell Oil Co., Inc., completed two new wells that showed an aggregate initial daily production of 1,068 bbl. per day. These new wells were No. 34 Edison finished flowing 824 bbl. of clean 31.3-gravity oil per day from 8,730 ft. and No. 104 Taylor completed flowing 244 bbl. of 31.1-gravity oil cutting 20 per cent from 5,341 ft. The former was finished with a 7⅝-in. water string cemented at 7,938 ft. and 835 ft. of 5½-in. liner carrying perforations at 7,931-8,063 ft., 8,108-8,371 ft., 8,416-8,544 ft., 8,593-8,637 ft., and at 8,681-8,724 ft. while the latter was finished with a 7⅝-in. water string cemented at 4,290 ft. and 1,110 ft. of 5½-in. liner landed at 5,338 ft. and perforated at 4,275-4,592 ft., 4,367-4,682 ft., 4,728-4,947 ft., 4,991-5,078 ft., and 5,121-5,338 ft. Several wells are scheduled to get under way in the Ventura Avenue field, Shell having already started No. 103 Taylor and staked locations for four more.

Michigan Oil Association

SAGINAW, Mich., Oct. 16.—W. L. Davis presided at the meeting of the Oil & Gas Association held at the Saginaw Club last week. Among the guests were Reid Brazell of the Leonard Refineries, introduced by Walter Leonard, and C. O. Willson, editor of The Oil and Gas Journal, introduced by Judge F. A. Calvert.

Shreveport Geologists

E. Floyd Miller of Oliphant Oil Co., Shreveport, La., was elected president of the Shreveport Geological Society, for the ensuing year, at the October meeting of the society. He succeeds Chester C. Clark of Union Producing Co. Other officers were J. D. Amer of Arkansas Fuel Oil Co., vice president, and Weldon Cartright of Tide Water Associated Oil Co., secretary-treasurer. Miss Anna Minkofsky of Shell Oil Co., Inc., was elected historian.

Louisiana-Arkansas Election

SHREVEPORT, La.—L. Mosely Moffitt, of Triangle Drilling Co. of Shreveport, La., was reelected president of the Louisiana-Arkansas division, Mid-Continent Oil and Gas Association, at the annual membership meeting.

Other officers reelected are D. W. Harris, C. R. Minor, J. S. Hasson, Charles G. Laskey, and J. R. McWilliams, vice presidents; and Arthur Campbell, secretary-treasurer. Reelected on the general board of the association from this division were C. N. Black, A. R. Carmody, and Tinsley Gilmer. R. T. Zook was added to this board.

A.P.I. Special Train

The Santa Fe will run a special diesel-powered, streamlined train to Chicago for the A.P.I. annual meeting, November 12, leaving Tulsa at 6 p.m., arriving at Chicago 8 a.m. November 13. Returning it will leave Chicago 6 p.m., November 17, and reach Tulsa at 8 a.m., November 18. The Oil Flyer leaves Tulsa daily at 1 p.m., arriving at Chicago 7:50 a.m. the following morning.

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Texas and Louisiana Gulf

By NEIL WILLIAMS

St. John Baptist Parish Has Prospective Distillate Pool

HOUSTON, Tex., Oct. 16.—La Place Prospect, St. John the Baptist Parish, coastal Louisiana, loomed as the next discovery for the Gulf Coast district as Pan American Production Co.'s No. 1 Mills, Section 12-11s-7e, recovered 10 gal. of distillate and 600 lb. working pressure on a drill-stem test at 8,870-96 ft. Several sands showing gas and distillate have been logged at intervals from 8,212 ft., to the total depth. At the close of the week the well was coring below 9,000 ft. in search of additional sands and the hole may be carried below 10,000 ft. before casing is cemented for a production test.

In Ascension Parish Humble Oil & Refining Co.'s No. 16 Gumbel, south flank of the Darrow dome, showed promise of opening production from a deeper sand as the result of a drill-stem test at 8,205-55 ft. which recovered 60 ft. of 33.6-gravity oil, 10 lb. of working pressure and 85 ft. of oil-cut and gas-cut drilling mud. Additional showings of oil and gas were cored at 8,255-8,324 ft. and at the close of the week the company was preparing to make an electrical survey.

Prospect of opening Tertiary Wilcox production in Republic Production Co.'s No. 9 Lutcher Moore in the Bancroft field, Beauregard Parish, was not encouraging as the well showed salt water with slight gas pressure on three production tests at 10,360-85 ft., 10,285-10,316 ft., and 10,290-10,302 ft. The hole has been plugged back to 8,400 ft. and another test was to be made at the end of the week. Since the best showing was reported to have been in the 10,000-ft. zone, little chance is given the well to produce in the 8,400-ft. zone, and the well is expected to be plugged back and completed in the regular Cockfield pay at 7,300 ft.

The Grand Bay Lake field, Cameron Parish, was extended approximately 1,300 ft. by Amerada Petroleum Corp.'s No. 1 State Mallard Bay, which had an initial production of 325 bbl. daily, flowing through a ¼-in. choke. The hole is bottomed at 9,661 ft. and the completion was made through perforated casing at 8,389-8,415 ft.

North of the Charenton field, on the edge of Grand Lake, Plymouth Oil Co. and others are driving piling for a projected deep wildcat on the Lynch McHugh lease in Section 13-12s-10e.

In the Golden Meadows field, La Fourche Parish, two oil wells were completed and production tests were being made on several wells. Brown & Wood's No. 1 J. Pitre, Section 9-19s-22e, flowed 144 bbl. per day through a ¼-in. choke from perforated casing at 2,646-55 ft. Golden Meadows Oil Co.'s No. 1 Collins was completed through perforated casing at 5,440-53 ft. for an initial production of 220 bbl. per day, flowing through a ¼-in. choke. M. H. Marr and others in No. 1 Adam Terrebonne, perforated casing at 7,895-7,935 ft., and are testing. Texas Co.'s No. 3 Falgout Holding Co. is bottomed at 2,670 ft. and 7-in. casing was cemented at 2,645 ft. The same company's No. 1 Theriot, Section 12-19s-21e, is bottomed at 10,000 ft. with 7-in. casing cemented on bottom.

Along the Texas coast the attempted blowout of a deep well in the League City field, Galveston County, and the announcement of several interesting wildcat locations were the featured developments the past week.

Phillips Petroleum Co.'s No. 1 Anna Wimhurst, northwest side of the League City field, Galveston County, has apparently opened a deeper producing zone, the well having attempted a blowout at a total depth of 10,962 ft. It was brought under control by pumping in heavy weighting material, but the drill stem was found stuck and it will be several days before the hole can be cored deeper.

Location for an interesting wildcat was made in the Bonney area, Brazoria County, by Humble Oil & Refining Co. The well is on the A. M. Smith lease, 466 ft. from the east line and 466 ft. from the south line of Lot 32, W. D. C. Hall Survey, south of the Sandy Point field and about 7½ miles north of the recently opened Anchor field. A potential test of Glenn H. McCarthy's No. 1 Carr, the discovery well of the Anchor field, showed an increase in production. Flowing through two bottom-hole chokes and a ⅝-in. choke on top, the well produced 267 bbl. of water-white distillate under a tubing pressure of 2,100 lb. Gravity of the distillate was 52° and the gas-oil ratio was 23,000 to 1.

North of the town of Matagorda in Matagorda County, location for a 7,700-ft wildcat was made by Gulf Stream Oil Co., Inc. The well is on the G. W. Zipprian lease in the Luke Lessassier Survey. Across the line in Wharton County, Sam G. Harris and others have derrick up for No. 1 C. T. Kountz, in Section 51, A.T. R.R. Survey.

H. C. Cockburn and others' No. 1 Dezierzanowski, the discovery well of the Rosenberg field, Fort Bend County, flowed 85 bbl. of fluid, 97 per cent of which was oil and the balance salt water on a 24-hour gage ending at 7 a.m. October 11. This well was completed several weeks ago in the Yegua sand at 7,726-43 ft.

General Crude Oil Co. added another deep producer to the south flank of the Esperson field, Liberty County, with the completion of No. 6-B Esperson. The well was completed through perforated casing at 7,130-40 ft., and on a 24-hour gage the well flowed 487 bbl. of oil plus 2 per cent salt water, flowing through a ¼-in. choke. The same company's No. 8-B Esperson cored oil sand at 7,650-7,768 ft. and the well is coring ahead in shale below 7,822 ft.

Locations for five wells were made in the Martha field, Liberty County, by Stanolind Oil & Gas Co. They are No. 2 Flowers, No. 1 R. G. Palmer, No. 2 Seaberg, No. 3 Seaberg, No. 1 Tyrell, all located in the I.&G.N. Survey No. 7, and No. 1 Ed Paul, a northwest outpost in the I.&G.N. Survey No. 9.

TEXAS GULF COAST COMPLETIONS IN PROVEN FIELDS

Brazoria County

Hastings field: N. W. Hunter's No. 1 E. S. Boyles, 6,553 ft., dry and abandoned. Stanolind Oil & Gas Co.'s No. 21-C Moore, perforated casing 6,042-46½ ft., 350 bbl. in 14 hours, ¼-in. choke. Old Ocean field: Harrison & Abercrombie's No. 2 Augsburger, 10,355 ft., 271 bbl., various chokes.

Chambers County

Anahuac field: Gulf Oil Corp.'s No. 11 Wilcox, 7,125 ft., 492 bbl., ¼-in. choke. Cotton Lake field: Humble Oil & Refining Co.'s No. 4 Flewellen, sand 6,285-89 ft., 150 bbl., ¼-in. choke.

Fort Bend County

Boling field: Mackhank Petroleum Co.'s No. 14-C J. R. Farmer, 4,621 ft., 43 bbl., 7/64-in. choke. Thompson field: Humble Oil & Refining Co.'s No. 15 H. P. Davis, sand 5,414-24 ft., 463 bbl., ¼-in. choke.

Jefferson County

Lovells Lake field: Rowan Drilling Co.'s No. 1 Bordages, perforated casing 7,795-7,808 ft., 182 bbl., ⅛-in. choke. Stanolind Oil & Gas Co.'s No. 1-A Steinhagen, perforated casing 7,789-94 ft., 169 bbl., ⅛-in. choke.

Harris County

Clear Lake field: Humble Oil & Refining Co.'s No. 14-C Humble-West, perforated casing 5,772-84 ft., gas well. Friendswood field: Humble Oil & Refining Co.'s No. 3 Anderson, sand 6,035-74 ft., 356 bbl., ¼-in. choke. Humble Oil & Refining Co.'s No. 6 J. J. Settegast, sand 6,027-37 ft., 535 bbl., ¼-in. choke. Humble field: Humble Oil & Refining Co.'s No. 3 O'Connor, 4,989 ft., dry and abandoned. Tomball field: Humble Oil & Refining Co.'s No. 7 Treichel, perforated casing 5,603-06 ft., 256 bbl., ¼-in. choke.

Liberty County

Hardin field: O. W. Dyer's No. 1 Humphrey, perforated casing 7,550-53 ft., 80 bbl., 16 hours, ⅛-in. choke.

(Continued on Page 101)

Rocky Mountain Area

Production estimates for week ended October 14:

	(Bbl.)
WYOMING	
Salt Creek	16,130
Big Muddy	1,200
Badger Basin	130
Byron	4,010
Dallas Derby	450
Dewey dome	10
Dutton Creek	50
Elk Basin	580
Frannie	630
Garland	2,350
Grass Creek	1,740
Hidden dome	70
Hudson	250
Iron Creek	10
LaBarge	870
Lance Creek	20,840
Lost Soldier	1,680
Mahoney	350
Medicine Bow	1,620
Mule Creek	190
Oregon Basin	3,620
Osage	900
Quealy dome	620
Rock River	1,860
Teapot	10
Warm Springs	140
Wertz	2,830
Total Wyoming	63,240
MONTANA	
Border	80
Cat Creek	570
Cut Bank	10,080
Dry Creek	790
Kevin-Sunburst	4,550
Pondera	970
Total Montana	17,040
COLORADO	
Florence	110
Fort Collins and Wellington	330
Wilson Creek	320
Iles dome	1,960
Moffat	340
Rangely	60
Tow Creek	150
Price	440
Total Colorado	3,710
NEW MEXICO	
Cooper	4,160
Eaves	870
West Eunice	140
Eunice	21,870
Hardy	3,630
Hobbs	12,310
Jal	560
Langlie	5,400
Lynch	490
Lynn	920
Mattix	5,170
Monument	23,050
North Lynch	30
Penrose	5,210
Rhoades	130
Skaggs	110
Skelly	1,790
South Eunice	4,060
South Lovington	960
Vacuum	11,230
Artesia-Maljamar	10,950
Getty	100
Hogback	200
Rattlesnake	570
Table Mesa	90
Total New Mexico	114,000
Total Rocky Mountain region	197,990

Michigan Field Report

By O. C. PRESSPRICH

3,100-Bbl. Well in Redding Best of 15 Oil Completions

SAGINAW, Mich., Oct. 16.—Paced by a Pure Oil Co. completion in the Redding field of Clare County, which added another well capable of producing 3,000 bbl. a day to Michigan's producing wells, the state's oil development proceeded last week at its customary pace. Fifteen new oil wells contributed to an increase of 8,750 bbl. in daily potential; two small gas wells were completed, and 15 oil tests were abandoned as dry holes, half of them being exploratory wells in wildcat territory.

Meanwhile oil interests were cheered by the week's crude price increases which returned dollar-a-barrel crude to both Central and southwestern Michigan fields. Improved marketing prospects coupled with a total production decline, due to emergency proration, was given credit for the upturn. Continuance of the proration orders, which became effective last August, is causing a good deal of discussion and the state Oil Advisory Board has scheduled a meeting in Lansing on October 25 with P. J. Hoffmaster, supervisor of wells, to consider possible revision. A public hearing will take place.

Petitions on file ask for further curtailment, as well as for increases in allowable production. Decision will be made, it is expected, at the November 10 meeting of the State Conservation Department.

The advisory board also has under consideration a request to reduce drilling tracts from 10 to 5 acres in southern Michigan counties. Decision is pending while geological information is being compiled. Drillers who asked for the change said the Trenton formation in the area is characterized by small composite pools and that to secure maximum production the smaller drilling units are advisable.

P. J. Hoffmaster, supervisor of wells for the state Advisory Board, speaking of the tight crude-oil situation in the state, and the necessity of continuing to curb production, said that unless new reserves are found between now and the end of the year the state will have drawn out more oil in 1939 than the total of the new reserves found this year. Mr. Hoffmaster and the Advisory Board desire to keep the supply down to demand.

Producing wells increased in September in Michigan by 45 to a total of 2,597, but oil production for the month dropped to 1,892,731 bbl., smallest since March. Daily average production declined more than 5,000 bbl. to a total of 63,091 bbl. The Freeman-Redding field in Clare County maintained its leadership.

Pure Oil Co.'s new big well is No. 3 Floyd E. Davis in Section 33, with total depth of 3,902 ft. Talbot Oil Co. and Socony-Vacuum Oil Co., Inc., each completed smaller wells in the same section.

Allegan County's Salem field continued its good record with four more oil completions ranging from 80 to 540 bbl. a day. Other new production was concentrated almost entirely in the Walker field of Kent County where five additional wells were completed, the best rating 50 bbl. an hour, the smallest 15 bbl. per hour. They are in Sections 29 and 30. A test in Section 19 was abandoned, adjoining Wyoming Township recorded one failure, one producer, and a wildcat venture in Kent's Alpine Township was abandoned as a dry hole.

Wildcatting in Ottawa, Kalamazoo, and St. Clair counties failed to produce results and three tests in Van Buren County were failures, although Bridger-Basin Oil Co. completed a small producer in Bangor Township.

Continued exploration was indicated as the State Conservation Commission granted 28 permits for new wells in 23 townships of 11 Michigan counties, 5 going to Walker, 6 to Allegan, 4 to Ottawa, 3 to Van Buren, 2 each to Clare, Montcalm, and Kalamazoo, and 1 each to Ogemaw, Midland, Monroe, and Jackson counties.

The commission on Friday, October 13, opened 19,975 more acres of state-owned land to wildcat oil and gas exploration, announcing it will receive bids at an undetermined date for leasing of land in Alcona, Arenac, Clare, Gladwin, Roscommon, and Wexford counties, all in the northern part of the state.

Following is a summary of last week's completions:

Allegan County

Hopkins Township (3n-12w)—C. A. Welch's No. 1 Charles Wildermuth, NE SE SW Section 7, was a dry hole, abandoned at 1,636 ft.

Salem Township (4n-13w)—Basin Oil Co.-Gordon Oil Co.'s No. 2 George Webber, NE NE NW Section 10, best of the new wells in the Salem field, was completed at 1,602 ft., initial daily production, after acid treatment, 540 bbl. Acidized and completed at a total depth of 1,651 ft., production was 125 bbl. a day from Red-Man Oil Co.'s No. 3 J. Heibel, NW SE SE Section 2. Socony-Vacuum Oil Co., Inc., had two completions, No. 1 Gordon and Cecelia Ledger, SW SW NW Section 14, rating 80 bbl. a day, after acid treatment, total depth 1,590 ft., and No. 3 Felix Markulic, SW NE SE Section 15, rated at 370 bbl. a day, after acid treatment, completion depth 1,578 ft.

Trowbridge Township (1n-13w)—Two failures marked Trowbridge exploratory drilling. Glenn McCoun abandoned No. 1 E. J. Dibble, SW NE NW Section 11, at 1,646 ft., and Hubbell Oil Producing Co.'s No. 1 Wayne Merchants, NW SW NE Section 18, was dry at 1,348½ ft. and abandoned.

Clare County

Freeman Township (18n-6w)—A small show of natural gas marked the completion by Taggart Brothers, Inc., of No. 18 N. H. Smith, C NE¼ Section 23, at 1,505½ ft. Production rated only 388,000 cu. ft. of gas a day.

Redding Township (19n-6w)—Pure Oil Co.'s No. 3 Floyd E. Davis, C E½ E½ NE Section 33, rated 3,144 bbl. initial daily potential. Total depth is 3,902 ft. Socony-Vacuum Oil Co., Inc.'s No. 4-B L. G. Fell, C S½ SW NE Section 33, completed at 3,905½ ft., had an initial natural production of 150 bbl. a day while Talbot Oil Co.'s No. 2-B Redding, C N½ NE SW Section 33, completed at 3,891 ft., rated 266 bbl. naturally.

Isabella County

Nottawa Township (15n-5w)—No. 1 William Yuncker, C N½ NW SE Section 14, a test by Cryden Petroleum Co. and others, was abandoned as a dry hole at 3,840 ft.

Kalamazoo County

Charleston Township (2s-9w)—Two wildcats were abandoned as dry, R. Roy Dickerson, trustee's No. 1 G. W. Kirby estate, NE NE NW Section 5, at 1,516 ft., and Smith Petroleum Co.'s No. 1 Herbert R. Becker, NW NW NW Section 32, at 1,569 ft.

Kent County

Alpine Township (8n-12w)—R. E. King's No. 1 W. P. Zahn, wildcat, C W½ NW NW Section 31, was a failure, and abandoned at 2,040 ft.

Walker Township (7n-12w)—No. 1 H. DeVos, SW SW NW Section 19, drilled by C. C. Goff and others, was abandoned as dry at 1,966 ft. Louis Rose's No. 2 Linacre and others, SW SE SE Section 29, was the best well of the week in the Walker field, rating 1,200 bbl. a day naturally, at a total depth of 1,903 ft. Ide & Glavin Development Corp. also got a good well when No. 2 P. J. Taalman, NW SW SW Section 29, came in for 600 bbl. a day naturally at 1,870 ft. There were three completions in Section 30. Gordon Oil Co. and others' No. 1 Henry A. Brenner, NW NW SE, total depth 1,897 ft., rated 360 bbl. a day, naturally, while Smith Petroleum Co. and others' No. 1 Leo J. Brehl and others, NE NW SE, rated 480 bbl. naturally at 1,920 ft., and No. 3 Hanaley & O'Sullivan, SW NE SW, total depth 1,896 ft., was good for an initial potential of 720 bbl.

Wyoming Township (6n-12w)—Welsh Oil Co.'s No. 4 Pere Marquette Railroad, SE NW SW Section 3, completed at 1,772 ft., was acid treated and production was at the rate of 400 bbl. a day, but Mesel & Spielberg's No. 1 M. Van Drunen, NE NE NE Section 15, was a dry hole, abandoned at a total depth of 1,925 ft.

Monroe County

Dundee Township (6s-6e)—After an acid treatment production was at the rate of 200 bbl. a day from A. V. Oil & Gas Co.'s No. 1 Herman Mueller, SE SW NW Section 30. Total depth was 2,107 ft.

Montcalm County

Home Township (12n-6w) — Belvidere Oil and others' No. 1 Homes & Hackett, C SW¼ Section 26, completed as a gas well at total depth of 1,318 ft., produced at 2,050,000 cu. ft. a day.

Ottawa County

Chester Township (9n-12w)—Columbia Oil & Gas Co.'s No. 1 Ferris E. Cook, NW NW SE Section 20, was abandoned as dry at 2,127 ft.

Tallmadge Township (7n-13w)—Lenoran Petroleum Co.'s No. 1 Raymond H. Lauer, SE NE NW Section 27, was dry and abandoned at 1,910 ft.

St. Clair County

Clyde Township (7n-16e)—Lee Brown's No. 1 Anthony Bates estate, NE NW NW Section 32, was dry and abandoned at 1,109 ft.

Van Buren County

Bangor Township (2s-16w)—Bridger-Basin Oil Co. acidized No. 3 Ulrath, NE SE NW Section 28, for production of 120 bbl. a day at a total depth of 1,002 ft., but Little Four Oil Co.'s No. 1 Joe Getz, NW NW SE Section 23, was a failure, abandoned at 1,580 ft.

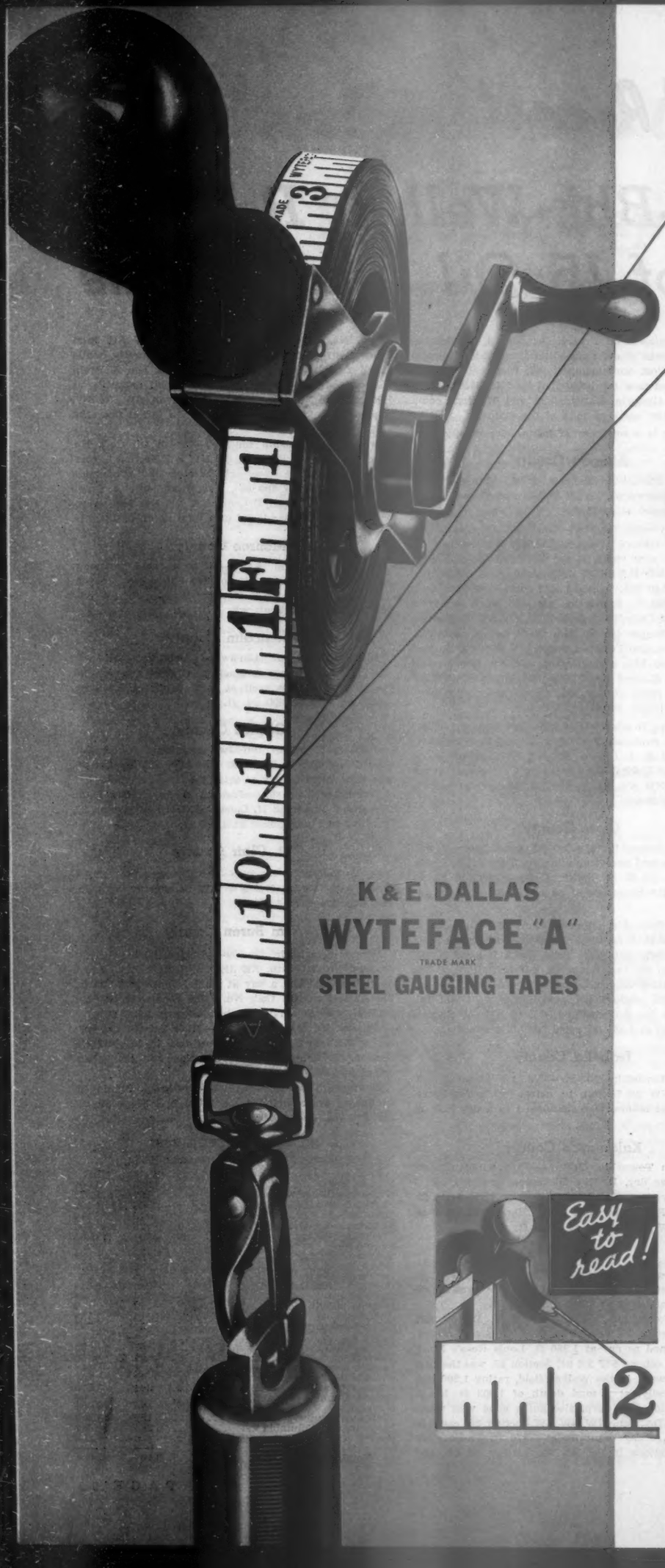
Geneva Township (1s-16w)—Michi-Cal Oil Corp.'s No. 1 William Piper exploratory test in SE NW SE Section 36, failed to get production and was abandoned at 2,587 ft.

Lawrence Township (3s-15w)—Westbrook Drilling & Producing Co. abandoned No. 1 Hugh C. Hess, SE SE SW Section 9, at 1,020 ft.

MICHIGAN CRUDE-OIL RUNS

Daily Average for September 1939

Pool—	Wells	Bbl.
Porter Yost	366	5,008
Greendale-Chippewa	199	1,377
Sherman-Isabella	58	1,102
Wise-Isabella	13	913
Vernon-Leaton-Denver	78	804
Freeman-Redding	104	13,261
Grant-Clare	2	0
Beaverton	20	157
Edenville	31	576
Bentley-Gladwin	35	466
Buckeye-Wicklund-Oard	369	5,049
Ogemaw	234	1,604
Secord-Gladwin	2	7
Adams-Arenac	14	135
Clayton-Arenac	54	1,595
Tuscola	4	20
Saginaw-Bay area	61	59
Birch Run	25	36
Dundee-Monroe	4	44
Montcalm County	49	397
Allegan County	364	8,679
Ottawa County (Zeeland)	1	90
Muskegon	79	61
Walker-Wyoming-Tallmadge	157	10,330
Bloomingdale-Columbia	264	11,052
Bangor (Van Buren)	8	258
Total	2,597	63,091



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North and East Texas

By D. H. STORMONT

Pipe-Line Outlet for Green Pool; Flag Lake Extension

WICHITA FALLS, Tex., Oct. 16.—Staking of new locations in two of the closely watched areas of North Texas, together with continued activity in the Hull-Silk area in northern Archer County, led developments in the district in the past week.

Staking of three locations and starting of work on a pipe-line outlet were reported for the Green pool in Baylor County. Opened the first of the year, the pool is producing from the 2,600-ft. horizon and has two wells. Only operator is British American Oil Producing Co. and that company plans the three new tests and is laying the pipe-line outlet. The company is laying 3 miles of pipe to the Shell Pipe Line Co.'s line running near the field. The new locations were No. 2-D Green, C NW SW of Block 216, T.&N.O. Survey, ¼ mile south of No. 1-C Green, which extended the pool three-quarters of a mile to the northeast; No. 2-D Green, C NW SW Section 215, half mile northeast of the discovery; and No. 3-D Green, C SW NW of Block 215, north of the No. 2-D Green. A half mile southwest of the discovery the company drilled No. 1 J. E. Cope, Block 220, which was dry and abandoned at a total depth of 5,560 ft.

Continuing the deep Strawn search in southwestern Clay County, Frabor-Hodges and Mid-Union Drilling Co. has staked location for a 5,200-ft. wildcat 1¼ miles southeast of their recent pool opener on the L. Kinder tract in Lot 11, Block 2, Clark & Plumb Survey. The new test is No. 1 L. C. Scaling, 330 ft. south and east of the SE cor. Lot 13, Block 2, Clark & Plumb Survey, but in Block 8, G. P. Meade Survey, Abstract 928. Location is slightly more than 1 mile southeast of No. 1 Kinder, which was completed for 157 bbl. daily to open a deep pool.

In the Hull-Silk pool of northern Archer County two new locations were staked during the week in the northern part of the Johnson extension area. Barnes & Traugh made location for No. 1-B Carson, a 4,500-ft. test, 330 ft. from the south and west lines of the west 80 acres of north 320 acres of Block 2, G.&T.B. Survey. No. 2-B Carson is located in the southeast corner of the 80-acre tract and is an east offset to the No. 1-B Carson. Along the south edge of the link area between the Hull-Silk pool proper and the Sikes pool to the northeast, Continental Oil Co.'s No. 2 Wilson, NE cor. Lot 4, Block 28, A.T.N.C.L. Survey, extended production nearly a quarter mile south when it drilled sand from 4,277 to 4,294 ft. The crew was last reported cleaning out and preparing to test.

A wildcat in western Montague County, which has been shut down for several weeks at a total depth of 5,049 ft., will be drilled deeper in search of Bend-lime production expected between 6,300 and 6,500 ft. It is Continental Oil Co. and S. J. Sackett's No. 1 Brown, Section 58, E.T. Survey, 7 miles north of Bowie. Walter Gant, of Wichita Falls, is reported to have acquired the interests of S. J. Sackett and will drill the test to the new contract depth.

Hardeman County's deep operation, Amerada Petroleum Corp.'s No. 1 Rice estate, Section 81, Block H, W.&N.W. Survey, was last reported drilling below 8,100 ft. and believed the deepest test drilled in North Texas. Formation was unannounced; however, it was reported nearing the Ellenburger lime of Ordovician age. The wildcat was originally contracted to 7,800 ft.; however, its high structural position merited its being carried deeper.

NORTH TEXAS COMPLETIONS

Archer County

Blackwell Oil & Gas Co. and others' No. 5 L. F. Wilson, 3,829-41 ft., 1,000 bbl. Deep Oil and Griffin's No. 4 W. T. Waggoner, 1,632-36 ft., 57 bbl. Hammon and Hanlon-Buchanan, Inc.'s No. 6 W. P. Ferguson B, 3,833-84 ft., 715 bbl., 12 hours. Helmerich & Payne and others' No. 5 L. F. Wilson, 3,836-45 ft., 1,120 bbl. Ligon and Deep Oil's No. 3 T. J. Moss A, 4,278-4,350 ft., 303 bbl. Bert L. Ligon and others' No. 9 T. C. Moss B, 1,290-98 ft., 75 bbl. N. H. Martin & Son's No. 15 J. S. Bridwell, 906-59 ft., 6 bbl.

Cooke County

Big Indian's Nos. 1 and 2 F. Gehrig, abandoned locations. M. Staniforth's No. 3 B. Voth, 1,669-72 ft., 340 bbl. Sinclair Prairie Oil Co.'s No. 14 Best, 4,900-19 ft., 1,548 bbl.

Jack County

Harper & Knappenberger's No. 1 G. E. Winn and others, 3,255-67 ft., 415 bbl.

Wichita County

L. T. Burns' No. 1 M. E. Carey, 1,385 ft., dry. C. W. Clark's No. 1-A F. P. Warren, 1,633-39 ft., 12 bbl. Deaton & Boardman's No. 11 F. P. Warren, 525 ft., dry. Hanlon-Buchanan, Inc.'s No. 1 Fassett & Tuttle E, 4,038-63 ft., 1,184 bbl. T. M. Hellam and others' No. 1 Burk Rexford, 570 ft., dry. Al McCutcheon's No. 4 L. C. Denny, 3,876-4,008 ft., 117 bbl. Al McCutcheon's No. 5 L. C. Denny, 3,869-4,007 ft., 856 bbl. Perkins & Cullum's No. 24 S. B. Burnett and others A, 666-71 ft., 10 bbl. Sinclair Prairie Oil Co.'s No. 4 N. H. Martin, 3,823-45 ft., 792 bbl.

Wilbarger County

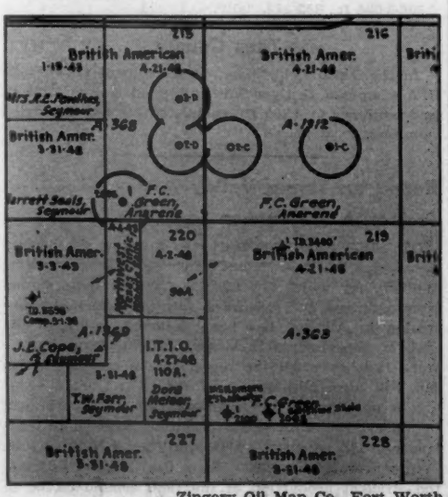
Lawson & Leavell's No. 1 W. T. Waggoner C, 1,446 ft., dry. Pois & Schulz's No. 2 J. P. King, 1,667-84 ft., 900 bbl.

Young County

Continental Oil Co.'s No. 1 A. Brogden, 3,996-4,001 ft., 902 bbl. Pitzer & West and others' No. 1 Mrs. F. Wray, 4,010-20 ft., 51 bbl. Seiboldt Drilling Co.'s No. 1 Bessie Bush, 4,020 ft., temporarily abandoned. Reimers-Walker Oil Corp.'s No. 1 Haggart, 710-20 ft., 1,500,000 cu. ft. gas. Stuckey Oil & Gas Co. and others' No. 3 S. M. J. Benson, 952 ft., dry. R. J. Watson's No. 3 C. J. Taack, 760 ft., dry.

EASTERN TEXAS

DALLAS, Tex., Oct. 16.—The exploration campaign extending throughout the East Central Texas district received a setback during the week as four wildcats were abandoned as dry and only two new wildcat locations were made. General field activity continued at about its usual pace. Five locations were staked in the East Texas field in which eight wells were completed. Two new locations were made in the Talco pool of Franklin and Titus counties, while one new start each was listed for the Cayuga and Navarro Crossing pools.



Zingery Oil Map Co., Fort Worth

The Green pool in Baylor County has been given three new locations and a new pipe-line outlet to assure it of immediate development. It is a new pool

Activity continues in the northern corner of Navarro County where Topaz Oil Co. recently extended the Flag Lake pool of Henderson County across the Navarro River and into that county. With the completion this week of the company's third test, there are two producers in the Navarro County portion of the field. The new completion is the No. 2 Trammel (the No. 1 Trammel having been dry and abandoned and disregarded in the listing of the producing wells). The No. 3 Trammel has been spudded and surface casing has been set below 60 ft. It is 660 ft. south and slightly west of No. 2 Trammel, completed for 352 bbl. of oil daily through ¼-in. choke on tubing. Unlike the extremely high gas-oil ratio wells in the Henderson County portion of the field proper, both No. 1 and No. 2 Trammel were completed for relatively low ratios, averaging approximately 325 to 1. The Trammel extension area is less than a mile from the body of the field, and has been classified by the Railroad Commission as a new field and given the name Bazette after the near-by town of that name. All operations in the area are in the A. C. Kyser Survey and on a Humble farmout.

Wildcat abandonments were listed for Freestone County, Leon County, Limestone County and Hunt County. In Hunt County Raymond Hedge has abandoned No. 1 R. E. Hale, G. W. Wright Survey, ½ mile northwest of Campbell, at a total depth of 3,546 ft. after topping the Woodbine at 2,885 ft. and finding no saturation. Another abandonment was listed for Hunt County, Westmont Oil Co.'s No. 1 Stevens, M. L. Terry Survey, 1 mile west of Celeste. The test was junked at a total depth of 4,916 ft. In Leon County, 6 miles southeast of the Buffalo gas area, J. K. Hughes abandoned No. 1 Moore, J. N. Boyd Survey, after finding salt water in the Woodbine sand. The test topped the Pecan Gap at 3,970 to 4,145 ft., Austin chalk at 5,000 to 5,204 ft., Woodbine at 5,480 ft. and was bottomed at 5,534 ft. In Freestone County W. H. Keeling abandoned No. 1 Bounds, R. B. Longbotham Survey, 1 mile northwest of Wortham, after spudding to a depth of 30 ft. In Limestone County Bunn & Willis' No. 1 Clyde Moore, G. W. McGrew Survey, 1½ miles northeast of Coolidge, was abandoned at 2,316 ft. with no shows reported.

Flag Lake Extension Area

The new wildcat locations were in Limestone and Navarro counties. Roy Handley is drilling below 135 ft. at his No. 1 W. E. McDaniel, located in the A. Bass Survey, 1 mile northwest of Celeste. It is 440 ft. from the south line and 440 ft. from the east line of a 100-acre tract in the survey. In Navarro County J. H. Burke is drilling below 1,150 ft. in No. 1 Johnson, J. P. Harden Survey, 1½ miles north of Powell. It is on the north 40 acres of a 345-acre tract in the survey.

Leasing Activity

The district continues its active leasing campaign as new acreage was acquired during the week in Van Zandt, Rusk and Angelina counties. In the southwest part of Van Zandt County, east and northeast of Mabank, A. F. Richardson and J. B. Daniels have taken several tracts in the H. H. Lockridge, J. B. Murray, J. P. Borden, J. Garcia and I. Marshall surveys. A test is

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planned when block is completed. East of Joinerville in Rusk County, Beacon Refining Co. is credited with having leased more than 2,500 acres for a possible test to the Paluxy horizon. Between Pollock and Wells in northwest Angelina County, Anglin & Cloud have assembled approximately 2,000 acres for a possible test to the Woodbine level. Leasing is active also in Madison and Leon counties, but no tests are expected in that area in the near future.

EAST TEXAS FIELD COMPLETIONS

(1-hour gages)

Gregg County—Longview Area

Alliance Oil Co.'s No. 1 G. M. Cosby, 3,597-3,623 ft., 65 bbl. Stanolind Oil & Gas Co. and Tide Water Associated Oil Co.'s No. 20 J. W. Aiken, 3,525-3,618 ft., 45 bbl. J. J. Jenkins Drilling Co.'s No. 2 Strand Theater, 3,543-78 ft., 25 bbl.

Rusk County—Joiner Area

Hunt's No. 27 C. Young, 3,656-3,742 ft., 44 bbl. Hunt's No. 29 C. Young, 3,635-85 ft., 42 bbl. Hunt's No. 30 C. Young, 3,660-3,728 ft., 42 bbl. Snetcher-Pitman's No. 8 J. Cox, 3,645-70 ft., 48 bbl. Stanolind Oil & Gas Co.'s No. 42-A Maxwell, 3,766-3,803 ft., 38 bbl.

EAST CENTRAL TEXAS COMPLETIONS

(24-hour gauges)

Franklin County

In the Talco field, Humble Oil & Refining Co.'s No. 12 Penn-fee, N. Dembriski Survey, perforated casing from 4,250-60 ft. with 10 shots and completed on pump for 362 bbl. daily.

Freestone County

A wildcat, W. H. Keeling's No. 1 Bounds, R. B. Longbotham Survey, 1 mile northwest of Wortham, abandoned at a depth of 30 ft.

Hunt County

A wildcat Raymond Hedge's No. 1 R. E. Hale, G. W. Wright Survey, ½ mile northwest of Campbell, topped the Woodbine at 2,885 ft. and dry and abandoned at total depth of 3,546 ft.

Westmont Oil Co.'s No. 1 Stevens, M. L. Terry Survey, 1 mile west of Celeste, junked and abandoned at total depth of 4,916 ft.

Leon County

J. K. Hughes' No. 1 Moore, J. N. Boyd Survey, 6 miles southeast of Buffalo, topped the Woodbine at 5,480 ft. and dry and abandoned at total depth of 5,534 ft.

Limestone County

A wildcat, Bunn & Willis' No. 1 Clyde Moore, G. W. McGrew Survey, 1½ miles northeast of Coolidge, dry and abandoned at total depth of 2,316 ft.

Navarro County

In the southwest-extension area of the Flag Lake field, Topaz Oil Co.'s No. 3 Trammel, A. C. Kyser Survey, 2,996-3,004 ft., 352 bbl. daily.

Titus County

In the Talco field, Magnolia Petroleum Co.'s No. 5 J. A. Chapman, G. Dyer Survey, topped sand at 4,278 ft. and bottomed at 4,292 ft., completed for 123 bbl. daily, pumping.

Report on Turner Valley Project in Preparation

OTTAWA, Ont.—Preparation of a report on the proposed pipe line to deliver Turner Valley crude to Fort William, for which Dr. Charles Camsell, deputy minister of mines and resources, recently gathered information in Alberta, has been deferred owing to the rush of departmental business brought about by the war. It is expected the report, to be completed this fall, will cover all phases.

It is not likely that construction of such a line will be undertaken until the Alberta fields develop a far larger crude potential. With the Turner Valley crude output prorated at 23,000 bbl. a day, experts estimate the efficient production of the field around 35,000 to 40,000 bbl. Average daily requirements of the prairie provinces are estimated at 18,000 bbl., leaving a possible 17,000 to 22,000 bbl. to be handled by the proposed pipe line.

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Oklahoma Operations

By DAL DALRYMPLE

Marshall County Wildcat Has Oil Showing in Viola Horizon

The Marshall County wildcat being drilled by Johnson-Kemnitz Drilling Co. and McGraw Oil Co. at No. 1 Neff-Godfrey, SW SE NE Section 14-6s-6e, was a principal topic of conservation in Oklahoma oil circles the past week as it gave promise of opening an oil pool.

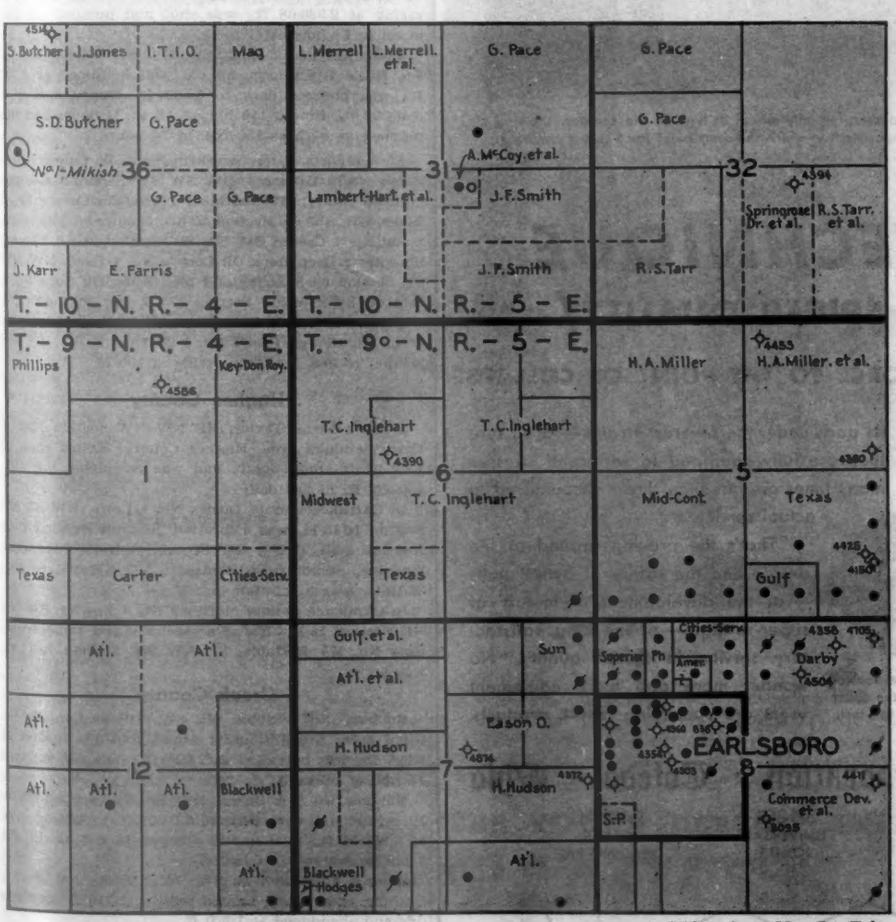
The wildcat gained the spotlight when it missed Hunton lime and found Viola lime high at 2,626 ft., and 17 ft. of lime carrying good stains and odor of oil was recovered in a core at 2,629-46 ft. Additional shows and stains were found as the drill penetrated farther into the lime. At the week end the crew was drilling below 2,700 ft., still in lime. Many observers believe the wildcat will make a small producer in the Viola zone, although a few geologists think the lime may have been found too high to produce. It proves a northwest-southeast trend from the Madill pool just northeast of the town of that name, where production is from the lower Deese formation. The bulk of acreage in the vicinity has been leased, major companies predominating. Considerable trading, stimulated by the showing of oil in Viola lime, was reported in Bryan and Marshall counties.

Production in the Altus pool, Jackson County, was extended ½ mile westward at Gulf Oil Corp.'s No. 1 Enos, NW NE NE Section 16-1n-20w. It pumped 47 bbl. of oil and no water in 13 hours from granite wash at 1,544-50 ft., but had not been completed. Same operators were starting work at No. 1 Herbert, SE SE NE Section 9-1n-20w, also on the west side of the field.

S. D. Butcher and others' No. 1 Mikish, SW SW NW Section 36-10-4, Hunton-lime discovery well northwest of the Earlsboro area, Pottawatomie County, was reported to have flowed 731 bbl. of oil through ½-in. tubing choke in 13 hours. It found water in Wilcox sand and plugged back to Hunton lime at 4,263-88 ft. Location for a south offset was announced at Deep Rock Oil Corp.'s No. 1 Mikish, NW NW SW Section 36.

Hall-Briscoe, Inc.'s No. 1 Thompson, SW SW NE Section 28-13-1e, wildcat east of Jones, Oklahoma County, was being cleaned out. It has made several head flows of oil after perforating casing at 4,798-4,808 ft. It was estimated good for 200 to 400 bbl. of oil daily. A shot of nitro damaged casing, necessitating the clean-out job.

With saturation found in three sand zones on the Cement townsite, Cement field, Caddo County, the city council has been petitioned by Lacy Rollins, an operator, to revise its drilling ordinance to permit drilling of more than one well to the city block. Johnson & Rollins' No. 1 Rasbery, Block 2, southwest side of the township, uncovered the three pay sands at 2,320-34 ft., 3,275-3,301 ft., and the Rowe sand at 3,426-50 ft., total depth. Casing was cemented at 3,426 ft. Work was under way at four other tests on the townsite.



Midcontinent Map Co., Tulsa

S. D. Butcher and others' No. 1 Mikish, SW SW NW Section 36-10-4e, opened a Hunton-lime pool northwest of the Earlsboro area, Pottawatomie County. Deep Rock Oil Corp. has announced location for a south offset in NW NW SW Section 36

Estimated Daily Production

Estimated daily production for Oklahoma for the week ending October 14, and for the preceding week was as follows:

	Barrels	
	Oct. 14	Oct. 7
Allen	5,725	5,575
Billings	5,925	5,725
Burbank	7,100	7,200
South Burbank	8,625	8,150
Balance Osage	17,000	17,350
Blackwell district	3,250	3,375
Bristow-Slick	6,500	6,500
Chandler	1,400	1,350
Crescent	2,600	2,625
Cromwell	3,025	2,975
Cushing-Shamrock	9,300	9,350
Duncan	3,650	3,675
Edmond	4,225	4,025
Fish	3,850	3,650
Fitts	20,900	22,350
Jesse	1,975	1,850
Graham-Fox	2,950	3,175
Gray	700	650
Healdton	9,175	8,900
Hewitt	3,675	3,625
Keokuk	3,075	2,825
Konawa	1,075	1,050
Lucien	8,275	8,225
Moore	2,600	2,550
Oklahoma City	108,625	91,750
Olympic	2,075	1,600
Ramsey	4,650	4,250
Sasakwa	1,075	1,025
Sholem-Alechem	2,625	2,525
Seminole district:		
Bowlegs	7,025	7,225
Carr City	2,300	2,350
Dora	2,775	2,650
Earlsboro	4,125	4,075
South Earlsboro	475	425
East Earlsboro	2,550	3,225
Little River	6,025	5,825
East Little River	675	525
Maud	575	500
Mission	1,200	1,125
Seminole	6,525	6,375
East Seminole	1,025	1,125
Searight	1,850	1,650
Total Seminole	37,125	37,075
St. Louis-Pearson	31,300	26,250
Tatums	1,525	1,050
Tonkawa-Garber-Thomas	3,875	3,850
Wewoka	1,675	1,625
Yale-Jennings	3,325	3,425
Other pools	90,900	91,275
Total Oklahoma	425,350	402,425

Pottawatomie County

Skelly Oil Co.'s No. 2 Decker, SW NW SW Section 16-7-4, an old well in the St. Louis district, Pottawatomie County, was plugged back from 4,178 ft. to 3,623 ft., ripped casing at 3,568-92 ft., was shot and flowed 121 bbl. of oil in 24 hours.

Alexander's No. 1 Mitchell, NW NE NE Section 3-6-4, an old well, pumped 40 bbl. of oil and 2,400 bbl. of water after deepening from 4,274 ft. to 4,327 ft.

Phillaine Oil Co.'s No. 3 Garrett, NW SE NW Section 28-7-4, an old well, was deepened from 4,146 ft. to Wilcox sand at 4,272-87 ft., total depth, and swabbed 200 bbl. of oil and 480 bbl. of water in 24 hours.

Harwood's No. 2 Brister, SE SW NE Section 29-7-5, had Viola lime at 4,030 ft., dolomite 4,133 ft., was bottomed at 4,218 ft., acidized with 5,000 gal., pumped 350 bbl. of oil and 250 bbl. of water the first 24 hours, and 100 bbl. of oil and 150 bbl. of water the next 24 hours.

Campbell's No. 1 Vieux, SE SE NW Section 31-7-5, was abandoned after setting 10-in. pipe at 60 ft. Smith's No. 4 Wood, NE NE SW Section 31-7-5, was an abandoned location.

Panner's No. 1 Johnson, SW SE SW Section 27-6-3, had dug cellar and pits. Alma Oil Co.'s No. 2 Youts, SE NW SW Section 28-7-5, had dug cellar and pits. Watchorn Oil & Gas Co.'s No. 2 Bourbonais, NW NW

NE Section 28-7-5, was a rig. Dunnett's No. 2 McDonald, SE SW SE Section 31-11-4, was a rig.

Wildcat Operations

Pure Oil Co.'s No. 1 Noble, C NE SE Section 35-3s-1e, wildcat that opened a new producing area in Carter County last summer, was listed as a completion the past week. It was drilled to contract depth of 8,500 ft. after topping Arbuckle lime at 7,930 ft. Failing to find production in that horizon, operators plugged back and tested Hunton lime at 4,638-4,737 ft., finding it dry. Casing was perforated between 4,160-4,324½ ft., and it pumped 97 bbl. of oil, 3 bbl. of water. Baker retainer was set at 4,275 ft. and casing was perforated again at 4,160-73 ft., at 4,192-4,200½ ft. and at 4,107-32 ft., with no results. Production was cemented off, plug set at 4,454 ft. and tubing run to 4,362 ft. It then flowed 182 bbl. of oil in 24 hours; the next day flowed 60 bbl. in 4 hours and pumped 70 bbl. of oil in 20 hours, with 3 bbl. of water. A few days later it was opened again and pumped 135 bbl. of oil in 24 hours, and when completed the past week was pumping at the rate of 75 bbl. of oil and 3 bbl. of water daily.

W. B. Pine's No. 1 Marlin, C N½ SE NE Section 14-11-16, wildcat in McIntosh County, was completed in sand at 2,360-72 ft., total depth. It produced 4,500,000 cu. ft. of gas daily, with 955 lb. rock pressure.

Other recent wildcat completions: E. P. Kerr's No. 1 Harrington, NW NW NW Section 24-9-4, Pottawatomie County, had Wilcox sand at 4,540 ft., water intruded and it was abandoned at 4,551 ft. Smith and others' No. 1 Kahn, SE SE NE Section 13-3-4, Pontotoc County, was dry and abandoned at 709 ft., total depth. Lewis & Myers' No. 1 Rhyne, SE SE SE Section 29-7-17w, Kiowa County, found Simpson sand at 1,045 ft. and was dry and abandoned at 1,191 ft. in shale. C. S. Amos' No. 1 Banks, C NW SW Section 21-7-22w, Greer County, had granite wash at 1,525 ft. and was dry and abandoned at 1,616 ft. in gabbro formation.

Portable Drilling Co.'s No. 1 Nickell, SE SE SE Section 17-14-5, Lincoln County wildcat, had broken lime at 4,040 ft. and was dry and abandoned at 4,053 ft., total depth.

New wildcats: Crescent's No. 1-A Thompson, NE NW SW Section 29-3-4, western Pontotoc County, machine; Dillard's No. 1 Hobbs, SE SE NW Section 35-6-17w, Kiowa County, spudded; Walters' No. 1 Wells, NE NW NE Section 15-16-2w, near Guthrie, Logan County, cellar and pits.

Pontotoc County

Stanolind Oil & Gas Co.'s No. 2 Grennan, NW SE SE Section 12-1n-7, Jesse pool, Pontotoc County, flowed 190 bbl. of oil in 5 hours and made daily potential of 890 bbl. It topped basal McLish zone at 4,589 ft., and was bottomed at 4,599 ft.

Simpson-Roodhouse Drilling Co.'s No. 1 Thompson, SW SW SE Section 34-2n-7, Fitts district, found sand at 1,872-84 ft., total depth, was shot and pumped 46 bbl. of oil and 12 bbl. of water in 24 hours.

New operations in Pontotoc County: Pierce's No. 1 Pettyjohn, SE SW SW Section 1-1n-7, drilling below 950 ft.; E. H. Moore, Inc.'s No. 2 Statler, SW SW SW Section 34-2n-7, rigging up rotary; Simpson-Roodhouse Drilling Co.'s No. 1 Hale, SW NW SE Section 34-2n-7, rig; Troutman's No. 1 Baylor, NW SW SW Section 20-5-5, location; Patterson's No. 1 Huddleston, NE SE SW Section 20-5-8, machine.

Seminole County

Skelly Oil Co.'s No. 4 Cherry, NE NW SW Section 6-9-6, an old well in the Earlsboro area, Seminole County, was plugged back from 4,659 ft. to 4,519 ft., acidized and pumped 30 bbl. of oil and 400 bbl. of water daily. Hunton lime was found at 4,474 ft.

Magnolia Petroleum Co.'s No. 7 Anderson, NW NE SW Section 18-9-6, East Earlsboro pool, was plugged back from 4,349 ft. to 3,034 ft., then to 2,925 ft., then to 2,860 ft., perforated, water intruded and it was abandoned.

Winona Oil Co.'s No. 1 Wolf, SW SW SE Section 18-7-8, an old well in the Fish area, was deepened from 3,112 ft. to 4,277 ft., plugged back to 2,978 ft., ripped casing at 2,930-68 ft., was shot and pumped 13 bbl. of oil in 24 hours.

Skelly Oil Co.'s No. 2 Carl, NW SE NE Section 14-7-6, Little River area, an old well bottomed at 4,597 ft., was plugged back to 3,492 ft., ripped casing at 3,468-92 ft., flowed 110 bbl. of oil in 24 hours and has pumped as high as 150 bbl. in 24 hours.

First reports of new work in Seminole County: Iglehart's No. 1 Talmasey, NW SW SW Section 3-6-5, rigging up rotary; Mid-Continent Petroleum Corp.'s No. 1 Tiger, SW SW SE Section 12-6-5, cellar and pits; Summers' No. 1 Caesar, SW SW SW Section 21-6-6, rigging up rotary; Deep Rock Oil Corp.'s No. 1 Reed, NW NW SE Section 6-6-8, cellar and pits; Alma Oil Co.'s No. 1 Denver, SW SW SW Section 27-7-5, rig; Johnson's No. 1 Fisher, SW SW NW Section 36-7-5, set 10-in. pipe at 62 ft.; George Pace's No. 1 Maxine, C W½ SE NE Section 18-10-6, set 12-in. casing at 100 ft.

Hughes County

McGee's No. 6 Taylor, NE NW NW Section 12-9-10, East Wetumka area, Hughes County, drilled sand at 1,185-97 ft., total depth, and was completed for 250,000 cu. ft. of gas daily.

In Okfuskee County Doak's No. 1 Lowe, NW SE NE Section 16-10-11, was a location; Summit Drilling Co.'s No. 2-A Steil, C N½ SW Section 18-10-11, twin well, machine; Stekoll's No. 1 Autry, NE NE NE Section 35-10-11, was a location.

In Okmulgee County Moffett's No. 1 Fowler, SW NE NE Section 16-11-12, was a machine, and same operator's No. 1-A Bostable, SE NW NE Section 16-11-12, was a rig.

Creek County

Robbins' No. 3 Noble, NE SW NW Section 35-18-8, Olive area, Creek County, found Red Fork sand at 2,595 ft., was bottomed at 2,630 ft., shot and pumped 15 bbl. of oil daily.

Martin's No. 1-A Darks, NW SE NW Section 28-14-10, an old well deepened from 3,257 ft. to Wilcox sand at 3,333-54 ft., total depth, pumped 12 bbl. of oil and 3 bbl. of water in 24 hours.

Kemp's No. 1 Sellers, SW SW NW Section 30-17-7, Cushing area, found Layton sand at 1,710 ft. and was dry and abandoned at 1,720 ft.

Strozier Drilling Co.'s No. 2 Baker, SE NE NW Section 20-17-9, Strozier pool, had a hole full of water in Bartlesville sand at 2,526-73 ft., total depth, and was abandoned.

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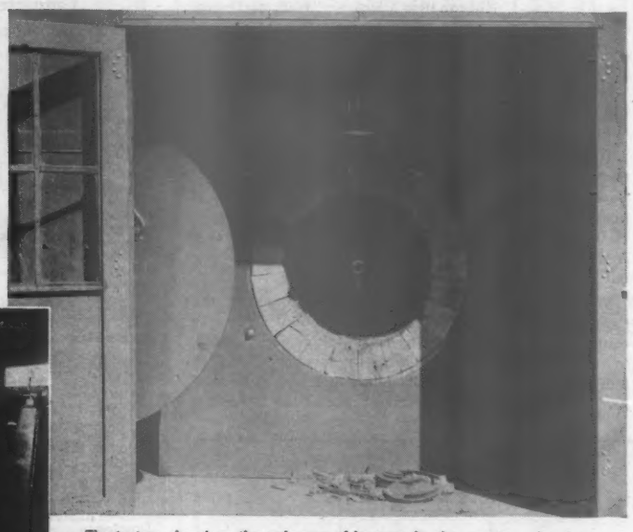

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Willibey's No. 3 Sandlin, NW NW NE Section 6-17-10, Kellyville district, drilled lime at 1,704-35 ft., total depth, was acidized with 2,000 gal. and pumped 15 bbl. of oil daily.

New work in Creek County: Chapman's No. 1 Tate, SW NE SE Section 35-15-10, cellar, Harwell's No. 3 Chisholm, NE NE SW Section 3-17-9, location; Curtis' No. 1 Franklin, SW SW SE Section 20-18-9, an old well, rigging up machine to deepen; Thomas' No. 1-A Richard, SE SE SE Section 36-18-9, machine; Swift's No. 3 Jacoby, NE SE SW Section 7-18-10, drilling below 1,350 ft.; H. F. Workey's No. 3 fee, NW SW SE Section 34-14-10, cellar.

Lincoln County

Wilcox Oil & Gas Co.'s No. 3 Furry, NE NW NE Section 21-14-6, Sac and Fox pool, Lincoln County, topped Prue sand at 3,012 ft., total depth 3,110 ft., was shot and flowed 50 bbl. of oil in 24 hours.

Same company's No. 7 Fitch, NE NW NE Section 15-14-6, and Jones' No. 6 May, SW SE SE Section 10-14-6, were abandoned locations.

Southern's No. 1 Morrow, SE NW NW Section 5-15-6, was a cellar.

Payne County

Mid-Continent Petroleum Corp. and others' No. 2 Simpson, SW SW SW Section 7-18-2e, north of the community block in the Ramsey pool, Payne County, was completed in Wilcox sand at 4,875-82 ft., total depth. It pumped 12 bbl. of oil and 800 bbl. of water in 24 hours, and is the smallest producer to be completed in the field.

Westcott's No. 1 Stanolind, SE SE SW Section 27-18-4, found dry Mississippi lime at 3,800-3,905 ft., total depth, and was abandoned.

Logan County

Sinclair Prairie Oil Co.'s No. 1 Ford, SW NW SE Section 12-17-1w, an old well in the Langston pool, Logan County, was deepened from 5,087 ft. in Marshall zone to 5,152 ft. in that zone and flowed 460 bbl. of oil in 24 hours, recompleted. This well uncovered a new pay horizon for the pool.

Jones' No. 1 Moore, C W½ NE SE Section 29-18-4w, Lovell area, had first Wilcox sand at 6,075 ft., second sand 6,214 ft., and was dry and abandoned at 6,275 ft.

New work in Logan County: Sinclair Prairie Oil Co.'s No. 1 Smith, NW SW SE Section 12-17-1w, an old well deepening from 5,100 ft., drilling below 5,157 ft.; Amerada Petroleum Corp.'s No. 2 Knight, NE SE SW Section 12-17-1w, an old well, rigging up standard tools to deepen from 5,100 ft.; Ohio Oil Co.'s No. 1 Knight, SE NE SW Section 12-17-1w, an old well, rigging up standard tools to deepen from 5,088 ft.

Pawnee County

Johnson Oil Refining Co.'s No. 11 Findley, C E½ NW NW Section 27-20-9, Keystone area, Pawnee County, had sandy lime at 482 ft., total depth 510 ft., and pumped 6 bbl. of oil daily.

Adamson's No. 4 Purcell, NE SE NW Section 34-21-8, Lauderdale pool, was shot at 1,665-1,727 ft., total depth, and pumped 5 bbl. of oil daily.

Sand Springs Home's No. 1 Stewart, SW SW SE Section 10-20-7, was a location.

Osage County

Midco Oil Corp.'s No. 1 Osage, NE NE SW Section 17-22-8, Osage County, found dry Arbuckle lime at 2,902-3,009 ft., total depth, and was abandoned.

Caddo County

Ray Stephens, Inc.'s No. 1 DeHeck, NW NW SE Section 21-6-10w, extended the Cement field, Caddo County, nearly 1 mile northwestward. It found sand at 3,305-15 ft., set 6-in. casing at 3,300 ft., pumped 60 bbl. of oil in 24 hours and was completed.

Yorkan Production Co.'s No. 1 Lucas, SW NE SW Section 3-5-9w, flowed 241 bbl. of 37-gravity oil in 4 hours and made 24-hour potential of 1,451 bbl. Production was from sand at 3,435-50 ft., total depth.

Magnolia Petroleum Co.'s No. 13 McKenna, SE NE SE Section 11-5-9w, topped Rowe sand at 3,298 ft., was bottomed at 3,334 ft. and completed for daily potential of 2,091 bbl. of oil. Same company's No. 7 Pau-Kune, SW NE NE Section 10-5-9w, an old Cement well bottomed at 2,437 ft., was a rig, preparatory to deepening.

In Grady County, Alma Oil Co.'s No. 5 Pettit, SE SE SE Section 11-4-8w, an old well, was building rig to deepen from 2,213 ft.

Stephens County

Helmerich & Payne, Inc.'s No. 1 Graham, SW SW NE Section 12-1n-5w, an old well in the Doyle pool, Stephens County, originally was bottomed at 5,014 ft., plugged back to 3,085 ft., deepened and perforated at 5,057-5,120 ft. It was shot, flowed 25 bbl. of oil in the first 24 hours and 32 bbl. in the next 24 hours.

McCalister's No. 5 Wade A, SE SW NE Section 11-2s-8w, Empire field, was dry and abandoned at 2,191 ft.

In Jackson County, Fish's No. 5 Mattie, NW SW SW Section 5-1s-19w, Tipton pool, found pay at 2,352-65 ft., total depth 2,430 ft. in shale, and pumped 40 bbl. of oil in 24 hours, completed. Gulf Oil Corp.'s No. 1 Herbert, SE SE NE Section 9-1n-20w, had spudded.

In Carter County, Ideal Oil Co.'s No. 14 Scoggins, NE SE SE Section 32-3s-3w, Healdton field, pumped 46 bbl. of oil in 24 hours and was completed in sand series at 860-1,146 ft., total depth. Jones' No. 7 Dillard, SE NW SW NE Section 22-4s-2w, an old well, was being deepened from 2,170 ft. and was drilling below 2,320 ft.

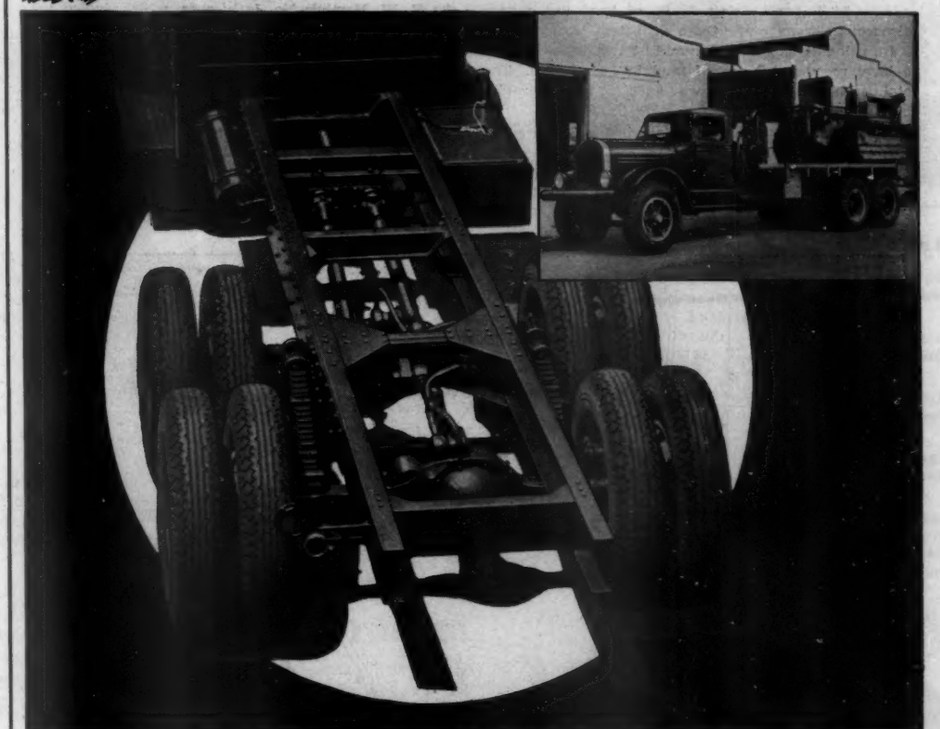
In Garfield County, Sinclair Prairie Oil Co.'s No. 3 West Kisner, SW NW NW Section 19-22-3w, Garber pool, had first Hoy sand at 1,144 ft., second Hoy at 1,173-96 ft., total depth, and pumped 75 bbl. of oil daily.

We Don't Want War Profits, Declares Mr. Seubert

DENVER, Colo.—Pres. Edward G. Seubert of Standard Oil Co. of Indiana said here "we don't want the profits that war may bring because we know that they will be offset by losses that come from disorganizing business and the economic disasters that always follow war."

Mr. Seubert visited Denver with W. W. Peake, vice president in charge of production, inspecting company properties.

BUILT FOR OIL FIELD DUTY



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North Louisiana, Arkansas

By
GEORGE WEBER

2 Tinsley, Miss., Outposts Testing at Critical Depths

SHREVEPORT, La., Oct. 16.—A gas blowout from a shallow sand in a wildcat drilling on the south edge of Shreveport attracted local interest at the week end, while attention in the district as a whole was on the outcome of two outposts in the Tinsley dome field of Yazoo County, Mississippi, and on wildcatting in South Arkansas.

A Cass County, Texas, outpost to the Rodessa field is showing gas for a possible extension in the Gloyd section. In North Louisiana the deep test in the Lisbon field is being closely watched as it cores the lower Marine formation.

Mississippi Activity

Outcome of the outposts to the Tinsley field, Mississippi's first oil pool, was unknown at the end of the week. The two tests, both drilled by the Union Producing Co., were at critical depths. No. 1 Stevens, north of the discovery, topped the chalk at 4,387 ft. and cored at 4,464-84 ft., recovering 15 ft. of hard dense gray micaceous porous lime. On a drill-stem test at 4,407-62 ft., using ¾-in. chokes top and bottom, it is reported to have recovered 15 ft. of mud in 14 minutes. The total depth at latest reports was 4,484 ft., with operators reaming down.

No. 1 Perry, south of the discovery well, cored at 4,527-47 ft., recovering 18 ft. 8 in. of dark gray dense chalk with no show of oil, and on coring at 4,547-67 ft. recovered 3 ft. 6 in. of hard gray shaly lime and 13 ft. of tight hard dense lime. The top of the chalk was logged at 4,480 ft. Total depth is 4,567 ft. and operators were reaming down at 4,502 ft. at latest reports. O'Brien Brothers and others' No. 1 Stevens, northeast of the discovery, is drilling ahead below the surface casing. With interest growing in Mississippi and Alabama, considerable future activity depends on the success or failure of these outposts in the Tinsley field. The north well is running high on the chalk.

Caddo Wildcat Blowout

Late in the past week, David Crawford's No. 1 Lloyd, a wildcat in the Broadmoor section south of the city of Shreveport, blew out in the shallow Nacatoch sand and caught fire. Some of the crew were burned, one seriously, and the derrick was pulled over to prevent collapsing on the fire fighters. The fire was extinguished after a few hours and the well is shut in at total depth of 1,410 ft. The gas sand which blew out is located at about 900 ft. This well is about 1¼ miles southwest of the F. W. Martin's No. 1 Querbes, which drilled to a total depth of 6,155 ft. last year and was abandoned.

Lisbon Test

In Claiborne Parish Lisbon Exploration Co.'s No. 1 Vaughn, a deep test drilling in the Lisbon field, topped the lower Marine formation at 7,833 ft. and at latest reports was coring black shale with streaks of sand at 8,302 ft. without any oil showing. This test, elevation 263 ft., is an important deep exploration which has drilled the Travis Peak formation below the Pettit lime production level in the field with only a few gas showings. The lower Marine will present an important prospective oil or gas formation, in view of the reserves opened in the Cotton Valley field to the west.

Arkansas Activity

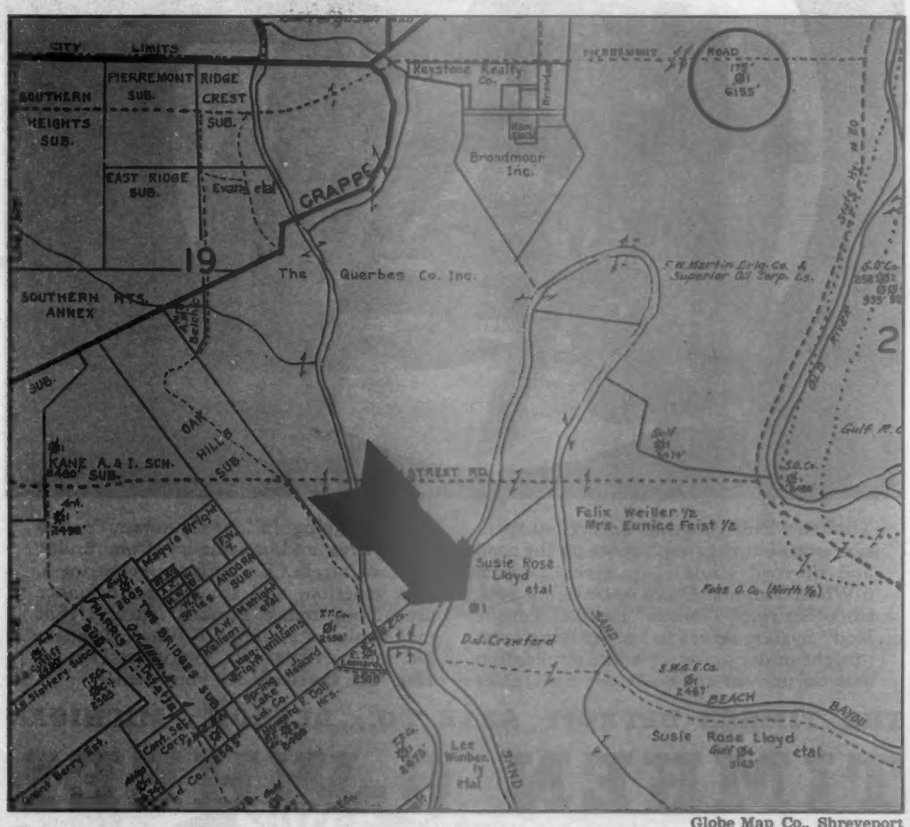
The Dorcheat field of Columbia County, South Arkansas' newest Smackover lime field, gained another location with Atlantic Refining Co., discoverers of the field, planning to drill No. 1-B Pine Woods Lumber Co., about ½ mile southwest of the discovery. The Lion Oil Refining Co. has resumed drilling No. 1 Warnock, in an east offset position to the discovery well.

Two important wildcats were begun by Standard Oil Co. of Louisiana. No. 1 Perry Stave & Lumber Co., SE cor. Section 4-17-21, northwest of the town of Magnolia, is rigged up. The second wildcat, No. 1 R. S. Warnock, NW cor. Section 36-16-20, is about 6 miles east of Magnolia, and northeast of the Magnolia field. Both wildcats are located in Columbia County.

East Texas

In Cass County G. Scott Hammond's No. 1 Price, an outpost on the south edge of Rodessa is testing about 500,000 cu. ft. of gas in the Gloyd section through open tubing. The well topped the Hill sand at 5,752 ft. and the Gloyd lime at 5,864 ft., with porosity at 5,872-78 ft. and 5,883-88 ft. A string of 5½-in. casing was set at 5,865 ft. and the total depth is 5,955 ft. The well will be allowed to flow in an effort to improve its flow.

In the Carthage high-pressure gas field of Panola County Turner & Smith are drilling below 6,100 ft. in hard lime after failing to find production in the lower Glen Rose lime which is producing the discovery well of the field 1 mile to the south.



Globe Map Co., Shreveport

D. J. Crawford's No. 1 Lloyd, a wildcat drilling on the south edge of Shreveport in the Broadmoor section blew out in the shallow Nacatoch sand and burned for several hours. The well, bottomed at 1,410 ft., will be drilled ahead after repairs are made

NORTH LOUISIANA COMPLETIONS

Caddo—Caddo Parish

F. & H. Oil Co.'s No. 1 Pitts, 990 ft. north, 330 ft. east of SW cor. NE¼ Section 18-21-15, dry and abandoned, 1,762 ft. McDonald Oil Co.'s No. 1 Thacker, 324 ft. south, 347 ft. east of C Section 1-20-16, pumping 25 bbl., total depth 1,569 ft. Texas Co.'s No. 18-B Noel, C NW NW NW Section 14-21-15, pumping 26 bbl., total depth 1,723 ft.

Monroe—Morehouse Parish

United Carbon Co.'s No. 2 Tulsa Plant fee, Section 4-21-5, 4,000,000 cu. ft. of gas, rock pressure 815 lb., 6-in. casing 2,252 ft., total depth 2,280 ft.

Zwolle—Sabine Parish

Major Oil Co.'s No. 7 Bowman Hicks, C NW NE SE Section 11-7-13, salt-water sand 2,572 ft., abandoned.

Monroe—Union Parish

Nemours Corp.'s No. 4 Haile, Section 1-21-3, 2,000,000 cu. ft. of gas, rock pressure 785 lb., total depth 2,201 ft.

Cotton Valley—Webster Parish

Hunt Oil Co.'s No. 1 Glass and others, C SE NW Section 30-21-9, set 7-in. casing at a total depth of 9,043 ft., perforated D sand 8,469-83 ft. and completed for 18 bbl. per hour through ¼-in. choke, tubing pressure 1,800 lb. Stanolind Oil & Gas Co.'s No. 3 Pardee, C SW SE Section 35-21-10, 697 bbl. through ¼-in. choke, tubing pressure 1,450 lb., casing pressure 1,800 lb., perforated 8,446-70 ft. in D sand, total depth 8,606 ft.

EAST TEXAS BORDER COMPLETIONS

Smithland—Marion County

J. D. Reynolds' No. 1-B Terry estate, 500 ft. south, 100 ft. west of No. 1, W. Coore Survey, set 7-in. casing

2,333 ft. and 4½-in. casing 2,330 ft., total depth 2,370 ft., casing collapsed, and plugged back to 1,100 ft. and milled out; completed. pumping 15 bbl. J. D. Reynolds and others' No. 5 Terry estate, 675 ft. east of No. 1, W. Coore Survey, total depth 2,359 ft., pumping 17 bbl.

Production by Pool

Estimated daily gross production all companies week ending October 14:

NORTH LOUISIANA

	Barrels
Bellevue	465
Caddo light	4,580
Caddo heavy	2,505
Converse	540
Cotton Valley light	*10,640
Cross Lake	4,305
De Soto and Red River	1,120
Elm Grove	345
Haynesville	2,760
Holly	90
Homer	2,750
Lisbon	5,510
Pleasant Hill	100
Rodessa	24,245
Sarepta-Carterville	†280
Sligo	1,260
Sugar Creek	310
Urania	2,550
Zwolle	2,625
Total	66,980

SOUTH ARKANSAS

Atlanta	390
Buckner	2,395
Champagnolle	1,375
Dorcheat	90
El Dorado	1,655
Lewisville	1,145
Lisbon	240
Magnolia	15,325
Miller County	270
Nevada	570
Rodessa	3,110
Schuler	17,985
Smackover light	1,910
Smackover heavy	14,585
Stephens	520
Troy	1,295
Urbana	1,040
Village	970
Total	64,870

Texas side of Rodessa field 27,365.

*3.215 bbl. is distillate.
†70 bbl. is distillate.

ARKANSAS COMPLETIONS

Village—Columbia County

McAlester Fuel Co.'s No. 1 E. D. Harris and others, C SW NW Section 14-17-19, 111 bbl. oil and 34 bbl. of water in 17 hours through 11/64-in. choke, casing pressure 1,000 lb., tubing pressure 800 lb., total depth 7,407 ft.

Lewisville—Lafayette County

East Texas Refining Co.'s No. 1-B Bell, NE cor. SE NW Section 19-16-23, 20 bbl. jetting with gas, total depth 2,320 ft.

Buckner—Lafayette County

Standard Oil Co. of Louisiana's No. 1 A. Foster, 570 ft. north, 650 ft. east of SW cor. NW SW Section 7-16-22, flowed 98 bbl. on 2-hour test on open tubing, acidized with 3,000 gal., casing pressure 100 lb., total depth 7,248 ft.

Urbana—Union County

Arkansas Southern Oil Corp.'s No. 3-A Simmons, 330 ft. NW cor. NE NW Section 15-18-13, dry and abandoned 2,629 ft. Delta Drilling Co.'s No. 1 W. D. Webb, C N½ NE SW Section 6-18-13, dry and abandoned 2,672 ft.

Gulf Coast Fields

(Continued from Page 92)

Esperson field: General Crude Oil Co.'s No. 6-B Esperson, perforated casing 7,130-40 ft., 497 bbl., ¼-in. choke.

Polk County

Segno field: Humble Oil & Refining Co.'s No. 16-B Kirby Lumber Co., 8,182 ft., 328 bbl., ¼-in. choke.

Tyler County

Spurger field: Republic Production Co.'s No. 24 fee, 7,756 ft., 492 bbl., ¼-in. choke.

Wharton County

Pickett Ridge field: J. B. Ferguson's No. 3 Pierce, 4,684 ft., 90 bbl., ⅛-in. choke. R. Y. Smith's No. 1 Halamicek, sand 5,535-43 ft., 11 bbl., ⅛-in. choke. Texas Co.'s No. 63 Pierce, 5,543 ft., 35 bbl., ⅛-in. choke.

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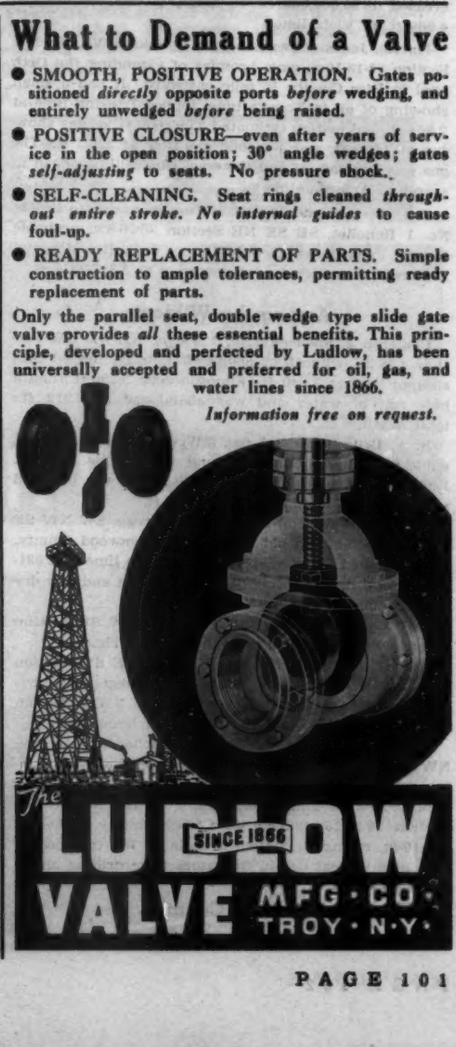
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Kansas Developments

By
DAL DALRYMPLE

Increase in Field Activity, Start Tests in 16 Counties

Field activity in Kansas has increased sharply since October 1, with as many as 56 new tests in 16 counties being reported in 1 week. The number of completions in the last fiscal week remained at low level, however, with only 16 oil wells and 6 dry holes being completed. Several additional wells were near completion and due to be included in the current week's field report. The completion report does not include old wells that have been deepened, plugged back or reconditioned and recompleted.

New operations were reported in Barton, Butler, Cowley, Ellis, Ellsworth, Greenwood, Harvey, Kingman, McPherson, Rice, Russell, Reno, Stafford, Sumner, Woodson, and Atchison counties. Some new activity also was reported in eastern counties not included in the scout tabulations.

The Hittle pool, locale of Kansas' biggest oil wells in recent months, has passed the 200,000-bbl. potential mark. The October tabulation of the Corporation Commission gives that Cowley County field a total potential of 208,604 bbl. daily for 55 wells. Production is limited to 0.67 per cent of potential, giving it a net allowable production of 25,944 bbl. in October.

The largest gas producer in the Cunningham field of Kingman and Pratt counties was recorded at Skelly Oil Co.'s No. 1 Lakin, C NE¼ Section 36-27-11w, in the Pratt County sector of the pool. Good naturally for 20,000,000 cu. ft. of gas daily, it was acidized and production increased to 90,000,000 cu. ft. daily. It was bottomed at 4,068 ft. in Viola lime.

Martin, Jones & Swain's No. 1 Behnke, CWL SW NW Section 25-18-10w, gave promise of extending the Orth pool in Rice County ½ mile eastward. It had a small showing of oil in Topeka lime, topped Lansing lime at 2,864 ft. and had an estimated 2,000,000 ft. of gas showing at 2,950 ft. and a second gas flow at 2,973 ft. The gas was mudded off and the crew was drilling ahead in search of Arbuckle lime.

C. L. Carlock and Earl B. Dufton were due to test at No. 1 Renollet, SE SE NE Section 36-20-8w, probable ¾-mile extensioner of the Wherry pool, Rice County. It found production in conglomerate at 3,317-23½ ft.

Among the Wildcats

Cameron & Spencer's No. 1 Fields, NE NE NW Section 4-28-2e, wildcat in Sedgwick County, topped Mississippi lime at 3,240 ft., Simpson zone 3,296 ft., had a hole full of water and was abandoned at 3,312 ft., total depth.

B. A. Bruce's No. 1-A fee, NW cor. Section 13-18-10, wildcat in Lyon County, found Bartlesville sand at 1,985 ft., Mississippi lime 2,240 ft., and was dry and abandoned at total depth of 2,333 ft.

Charles Barker and others' No. 1 Gregg, SW NW SE Section 35-25-12, an old wildcat in Greenwood County, was deepened from 1,660 ft. to Arbuckle lime at 2,031-41 ft., total depth; it had nothing showing and was dry and abandoned.

Earl Wakefield's No. 1 Stiel, C E½ SW SE Section 6-32-6, wildcat in Cowley County, was a rig.

Shaffer & Smith's No. 1 well in NE NE SW Section 9-13-11w, Russell County wildcat, had erected rig.

Riddell & Davidson's No. 1 Boals, C NW¼ Section 15-21-12, was location for a wildcat in Lyon County.

Billerman and others' No. 1 Rauscher, C S½ N½ NW Section 1-25-13, Woodson County wildcat, was drilling below 200 ft.

B. O. Hollett and others' No. 1 Butler, SE SW SE Section 28-20-15, wildcat in Coffey County, failed to get 10-in. casing to bottom of hole at 709 ft., and set 8-in. pipe at that depth. Operators were drilling ahead below 800 ft.

Cowley County

Arthur Brewer's No. 5 Lewis, SW SW NE Section 28-31-4, Hittle pool, Cowley County, found Arbuckle lime at 3,352-55 ft., was bottomed at 3,357 ft., and pumped and flowed 212 bbl. of oil in 24 hours.

Cities Service Oil Co.'s No. 1 Scott, NE NE NW Section 21-31-4, pumped 144 bbl. of oil in 21 hours and was estimated good for 150 bbl. daily, completed. Production was from Arbuckle lime at 3,378-85 ft., total depth.

Rosenthal's No. 8 Olson, NE SE NW Section 1-35-7, had Kansas City lime at 2,420-38 ft., total depth 3,220 ft., and was completed as a 10-bbl. pumper.

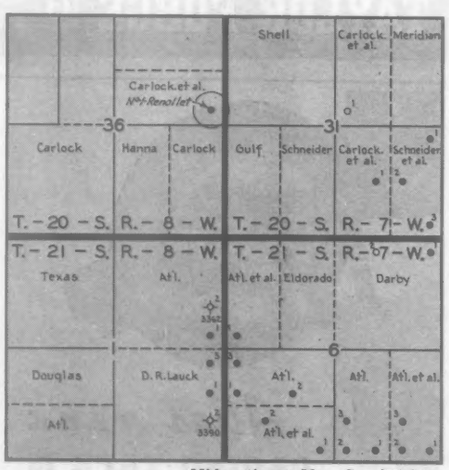
Mead Production Co.'s No. 2 Julian, SW SW SE Section 16-33-3, Rainbow Bend area, pumped 35 bbl. of 40.3-gravity oil in 24 hours from Bartlesville sand at 3,190-3,210 ft., total depth 3,213 ft.

Arthur Brewer's No. 2 Curfman, NW NW SE Section 28-31-4, was a temporarily abandoned location.

Kansas-Oklahoma Oil Co.'s No. 5 Graham, SW cor. Section 10-32-4, new test in Cowley County, was drilling below 1,036 ft.

McPherson County

H. C. Bennett's No. 1 Peterson, C S½ NW NW Section 32-20-5w, Bornholdt area, McPherson County, was completed in Mississippi lime pay at 3,350-75 ft., total depth. It pumped 161 bbl. of 35.1-gravity oil in 8 hours and made initial daily potential of 482 bbl.



Midcontinent Map Co., Wichita

C. L. Carlock and others' No. 1 Renollet, SE SE NE Section 36-20-8w, prospective extensioner of the Wherry pool, Rice County, was due for production test

Westgate-Greenland Oil Co.'s No. 2 Henne, C S½ SE SW Section 18-17-1w, new McPherson County test, was rigging up rotary.

In Harvey County Gulf Oil Corp.'s No. 1 Redenbaugh, SW NW SW Section 17-23-3w, was a location.

Russell County

Skelly Oil Co.'s No. 4 Rein, C S½ SE NW Section 8-15-13w, Coralena pool, Russell County, drilled Arbuckle lime at 3,185-3,200 ft., total depth. It pumped 164 bbl. of oil in 3 hours, made echometer potential of 910 bbl. of oil, with 20 per cent water, and was completed.

Coralena Oil Co.'s No. 10 Sellens, C N½ S½ NW Section 17-15-13w, was completed for echometer potential of 1,460 bbl. of oil in Arbuckle lime at 3,175-80 ft., total depth. This well previously was listed as No. 1 Sellens.

Hartman & Blair's No. 1-C Boxberger, C E½ SE NW Section 14-14-14w, Gurney area, had a hole full of water and was abandoned at 3,268 ft.

Liggett and others' No. 3 Durham, SW SE NE Section 20-11-15w, Fairport area, was completed at 3,281 ft., total depth, for 421 bbl. of oil daily.

R. H. Shields' No. 3 Rogg, N½ SW SW Section 28-14-13w, was an abandoned location.

New work in Russell County: Stanolind Oil & Gas Co.'s No. 9 Roesner, C N½ NW SW Section 9-15-13w, was a location; Skelly Oil Co.'s No. 1 Anderson, S½ SW NW Section 8-15-13w, was rigging up rotary.

Estimated Daily Production

Estimated daily production for Kansas for the week ending October 14, and for the preceding week was as follows:

	Barrels	
	Oct. 14	Oct. 7
Oxford City	800	775
Burrton	10,100	8,725
Ritz-Canton	4,400	4,325
Graber	2,675	2,100
Hollow-Nikkel	1,925	1,825
Lerado	975	1,175
Voshell	1,725	1,675
Wellington	2,175	1,950
Ellsworth County:		
Lorraine	2,050	2,000
Other pools	5,525	2,195
Rice-Barton counties:		
Bloomer	3,150	2,025
Chase	4,675	3,900
Geneseo	3,550	1,575
Raymond	700	475
Silica	11,350	8,675
South Silica	2,350	1,275
Keesling	950	775
Wherry	4,025	2,900
Miscellaneous Rice	4,675	5,675
Miscellaneous Barton	8,975	8,935
Russell County	26,925	17,500
Sedgwick County	3,225	2,525
Ellis County:		
Bemis	6,525	2,350
Miscellaneous	3,395	3,485
Kingman County	715	910
Stafford County	4,255	7,850
Greenwood County	8,750	8,900
El Dorado	7,650	7,675
Other fields	30,145	29,925
Total Kansas	164,125	144,075

Barton County

Iron Drilling Co.'s No. 1 Kreston, C E½ SE NE Section 20-17-15w, Pospishel area, Barton County, was dry and abandoned at 3,595 ft., total depth.

W. R. Yeager's No. 1 Krier, C S½ SW NW Section 18-16-11w, was an abandoned location in the Prusa district.

In Ellsworth County Continental Oil Co.'s No. 8 Rolfs, C W½ W½ NW Section 34-17-8w, was a cellar.

Ellis County

Lario Oil & Gas Co.'s No. 2-C Cress, NW SW SW Section 13-11-17w, Cress pool, Ellis County, found Arbuckle lime at 3,362-77 ft., total depth, and oil rose 2,850 ft. in the hole. It made echometer potential of 9,480 bbl. of oil and was completed for maximum allowable potential of 3,500 bbl.

New activity in Ellis County: Dickey Oil Co.'s No. 1 Kollman, C N½ SW NE Section 18-11-17w, location; Shell Oil Co., Inc.'s No. 27 Rumsey, SE NW NE Section 23-11-17w, pits; Cities Service Oil Co.'s No. 4 Calahan, NW SW NW Section 24-11-17w, location.

Rooks County

Broadview Oil Co.'s No. 1 Baxter, NE SW SW Section 35-8-16w, Laton area, Rooks County, found Lansing lime at 3,182 ft., was bottomed at 3,263 ft., pumped 89 bbl. of oil in 8 hours and was completed for 24-hour potential of 269 bbl.

Rice County

Phillips Petroleum Co.'s No. 1 Miner, C SW NE Section 35-19-10w, east side of the Silica field, Rice Coun-

ty, was dry and abandoned at 3,318 ft., total depth.

First reports of new operations in Rice County: Continental Oil Co.'s No. 3 Poland, NW NW SE Section 30-18-7w, set casing and waiting on cement at 213 ft.; same company's No. 8 Nickel, NW SE SW Section 13-18-8w, cellar; Grace Oil Co.'s No. 6-A Grassman, C W½ NE NE Section 8-21-7w, rigging rotary.

Marion County

Lariaux & Phillips' No. 1 Bevins, SW SW SE Section 21-17-4, Lost Springs area, Marion County, drilled Mississippi lime at 2,377-2,406 ft., total depth, it flowed for 1½ hours and was estimated good for 250 bbl. of oil daily, completed.

Mendenhall & Ryan's No. 2 Bucher, NW NW NE Section 28-17-4, had a hole full of oil and, after a short flow, was completed for an estimated 250 bbl. of oil daily. Production was from pay in Mississippi lime at 2,392-2,415 ft., total depth.

Woodson County

Oko Oil Co.'s No. 5 Hoagland, C S½ SE SE Section 36-23-14, Woodson County, was treated with acid, pumped 96 bbl. of oil the first 21 hours and was completed for 35 bbl. daily. Production was from Mississippi lime pay at 1,614-30 ft., total depth.

In Greenwood County Barbara Oil Co.'s No. 26 Schneider, NE SW NW Section 10-23-13, was deepened to 1,790 ft. and recompleted for 15 bbl. of oil daily.

In Butler County Adair & Morton's No. 8 Brandt, SE SE SE Section 15-28-7, Brandt area, was completed for 35 bbl. of oil daily at 2,701 ft., total depth. Same operators' No. 1 Cannon, NE NE NW Section 15-28-7, was rigging up machine. Richmond Drilling Co.'s No. 5 Walker, E½ SE NE Section 3-28-4, was drilling below 1,005 ft.

Johnson County

OK Supply Co. and A. G. Blauner's No. 3 Knabe B, NW SE SW NE Section 15-14-22, Gardner area, Johnson County, was bottomed at 884 ft. and completed for 5 bbl. of oil daily.

A. L. Roberts and others' No. 1 Bray, C NE NW Section 12-14-22, was an abandoned rig.

Forest City Basin Activity

ST. JOSEPH, Mo., Oct. 16.—Benedum & Trees, widely known wildcatters of Pittsburgh, Pa., have entered the Forest City basin activity in northern Missouri and are interested in what some geologists consider one of the more promising of the basin wildcats—the Morrow & Rodgers No. 1 Cooley, NW SE SE NW Section 33-64-17w, Adair County. The hole was bottomed at 965 ft., and operators were expected to plug back and acidize between 871-86 ft., where a showing of oil was found in Calloway lime.

Work was resumed the past week at Brin & Nathan's No. 1 Decker, NW NW Section 1-61-38w, Holt County, another of the more favored Missouri tests. A 15-in. hole was underreamed to 1,030 ft., past a lost bit, and 12-in. casing was to be lowered from about 800 ft.

W. H. Oberithier and others had dug cellar and pits and were moving in material at No. 1 Campbell, C NE Section 18-61-12w, Knox County, northeastern Missouri. J. W. Eddington and associates continued to have difficulty with cavings at around 200 ft. in No. 1 Clark, NW NE SE Section 8-63-14w, Adair County. Mr. Eddington was reported planning to drill another Adair County test, and Ward McGinnis of Eureka, Kans., and the Benedum & Trees-Morrow & Rodgers interests were considering drilling wildcats in Adair and Schuyler counties, respectively, it was reported.

Bob Miller and others' No. 1 Corrough, C SE SE Section 24-57-35w, had completed water well and shut down at 96 ft. Drilling was suspended pending completion of financial deals for the wildcat, which is near St. Joseph, in Buchanan County.

H. V. Elwell, one of the first operators to enter the basin in the current leasing and drilling campaign, has sold interests in a block in Township 63, Ranges 27-28w, near Bethany in Harrison County, to C. M. Fitzwilliam and Marvin Lee, geologist, of Wichita. It is believed probable they will start a test before January 1.

Pabelo Development Co.'s No. 1 Bartlett, SE NW NE Section 34-52-32w, in the Liberty area, Clay County, had gas showing at 615 ft., total depth 755 ft., plugged back to 640 ft., ran 2-in. tubing, and produced 170,000 cu. ft. of gas daily.

Commerce Trust Co.'s No. 1 Charlton, NW NE NE Section 3-47-30w, about 2 miles northwest of the Shawhan gas area, Jackson County, found Squirrel

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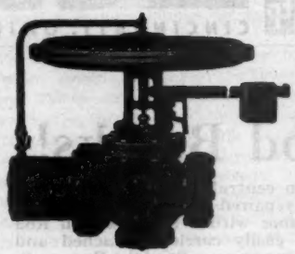

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sand at 319 ft., water intruded and it was abandoned at 400 ft.

Missouri Valley Gas & Oil Co.'s No. 1 Yerrington, C SE NE Section 12-51-34w, failed to find sand and was dry and abandoned at 645 ft., total depth. It is in southern Platte County.

In the Kansas sector of the basin, Carter Oil Co. had started work at a slim-hole test in Section 10-6-19, Atchison County. This is a so-called "mystery" test, with operators not giving out information. The Carter company is one of the larger leaseholders in the basin.

Dan Kornfeld and others' No. 1 Mathis, NE NE NE Section 22-5n-1w, in Fillmore County, Nebraska, south of the town of Ohiowa, was spudded. Fillmore County is in southern Nebraska, but west of that part of the state generally considered as being a part of the Forest City basin. Pawnee Royalty Co.'s No. 1 Boice, CSL N½ NE NE Section 18-1n-16e, Richardson County, in the basin, was around 2,000 ft., thought to be in Viola lime, but information was withheld.

In the Iowa sector, Oscar Gruber's No. 1 fee, C SW SE Section 8-67-40w, Fremont County, was shut down at 1,065 ft. Operator was working on deal to drill deeper. The other Iowa wildcat, F. E. Hunt and others' No. 1 McConnel, C SE SE Section 11-78-30w, was shut down at 35 ft. for repairs. Location is in Guthrie County.

West Texas Fields

(Continued from Page 82)

Sahara Oil Co.'s No. 4 Sullivan, 1,671-1,684 ft., 118 bbl. In the Pecos Valley pool, Kone Production Co.'s No. 14 Pecos Valley, 1,558-1,630 ft., 229 bbl.

Hockley County

In the Slaughter pool Texas Pacific Coal & Oil Co.'s No. 2 Lauhoff, 4,796-4,998 ft., 317 bbl.

Scurry County

In the Sharon pool Dobson & Robinson's No. 1 McClure, 2,255-2,438 ft., 125 bbl. Dobson & Robinson's No. 2 McClure, 2,230-2,494 ft., 195 bbl. Robinson Brothers Co.'s No. 1 H. C. Woodward, 2,246-2,449 ft., 157 bbl.

Stonewall County

A wildcat, Lester Clark's No. 1 Raynor, dry and abandoned at total depth of 5,070 ft.

Upton County

In the McCamey pool J. W. Ellis & Peters' No. 3-B Robbins, 2,139-2,231 ft., 11 bbl., old well drilled deeper. Shell Oil Co., Inc.'s No. 28 Bowen, 2,124-2,237 ft., 282 bbl., old well drilled deeper. Shell Oil Co., Inc.'s No. 3 Rogers, 2,576-2,687 ft., 407 bbl., old well drilled deeper.

Ward County

In the Hutchinson pool Gulf Oil Corp.'s No. 129 Hutchinson, 2,516-2,755 ft., 2,415 bbl.

Winkler County

In the Keystone pool Magnolia Petroleum Co.'s No. 56 Walton, 3,172-3,250 ft., 130 bbl., old well drilled deeper. W.K. Royalty's No. 9-B Walton, 2,840-3,067 ft., 132 bbl. In the Sealy pool Skelly Oil Co.'s No. 32 Halley, 2,665-2,800 ft., 78 bbl. Sam Weiner's No. 1 Jenkins-Continental, junked and abandoned at 2,375 ft.

Yoakum County

In the Wasson-Bennett pool Fred M. Allison's No. 4 Edens, 4,910-5,135 ft., 949 bbl. Denver Production Co.'s No. 16 Whittenburg, 4,890-5,146 ft., 1,317 bbl. Shell Oil Co., Inc.'s No. 11-C Baumgart, 4,850-5,187 ft., 1,043 bbl.

WEST CENTRAL TEXAS COMPLETIONS

(24-hour gages)

Brown County

W. J. Murry's No. 2 Cross, 1,078-88 ft., 10 bbl. Scherrenbeck's No. 1 Clardy, dry and abandoned at total depth of 550 ft. Ed Selvidge's No. 8-A fee, dry and abandoned 1,204 ft.

Callahan County

Little's No. 1 Ledbetter, 1,723-26 ft., 40 bbl.

Jones County

Jenning's No. 1 Pope, dry and abandoned at total

depth of 2,080 ft. Scholl's No. 1 Lendeman, dry and abandoned at total depth of 1,931 ft.

Coleman County

Schoffner's No. 1 Rude, 847-50 ft., 4 bbl.

Mills County

Lane's No. 1 Spinks, dry and abandoned at total depth 2,430 ft.

Shackelford County

Beams Drilling Co.'s No. 2 Jackson, dry and abandoned at unreported depth. Lee & Key's No. 7 Lee, 1,112-20 ft., 10 bbl. S. B. Roberts and Owens-Snebold's No. 1 Olsen, dry and abandoned at total depth of 3,215 ft. Roeser & Pendleton's No. 2-A Cook, dry and abandoned at total depth 1,710 ft.

PANHANDLE DISTRICT

Northern Hutchinson County experienced its first development on the large block taken by Edward J Dunigan, trustee, from the Humble Oil & Refining Co when the operator staked location for No. 1 R. C Kay, NW cor. Section 1, Block 2-R, D.&P.R.R. Survey. The location is about ½ mile southwest of Humble's No. 1 Logan, a wildcat completed 4 years ago for 45 bbl. of oil daily. The lease was taken by the operator last week and a development campaign is planned for the area. The Humble well has never been produced due to lack of outlet. Twelve other locations were started in the district, one in Carson County, seven in Gray, three in Hutchinson and one in Wheeler.

PANHANDLE COMPLETIONS

(24-hour gages)

Gray County

Southern Petroleum Exploration Co.'s No. 2 W. C. Archer, 3,170-3,280 ft., 33 bbl. Stanolind Oil & Gas Co.'s No. 13 W. G. Kunzer, 3,270-3,316 ft., 191 bbl. Stanolind Oil & Gas Co.'s No. 10 H. H. Merton, 3,212-86 ft., 288 bbl.

Hutchinson County

Continental Oil Co.'s No. 1 W. A. Carver, 3,055-3,161 ft., 9,400,000 cu. ft. gas. Stanolind Oil & Gas Co.'s No. 13 Moore, 2,990-3,116 ft., 316 bbl. Stanolind Oil & Gas Co.'s No. 17 H. B. Terry, 2,973-3,025 ft., 286 bbl.

WAR OIL DEMAND

(Continued from Page 40)

The fourth large group, the one upon whom the greatest burden would fall, includes Mexico and the United States (Canada is not an exporter) with a daily capacity of 656,000 tons, more than 200,000,000 tons per year. At present, the refineries of the United States are operating at less than 80 per cent of their capacity, indicating that they could easily handle the added requirements without undue strain. This refining capacity could be expanded in the United States very rapidly and Mexico's refining capacity is more than sufficient to meet her present production, as well as her contemplated increase.

Only one remaining problem exists, that of transporting the products to the belligerents. Certain unsolved political considerations make it impossible to predetermine the role of American tankers in this matter. It is highly improbable that petroleum products will be required to move around Africa—the 11,000-mile route. In all probability, all requirements will be met from the Americas where both crude potentialities and refining capacities exist. In this event, tankers can make six round trips per year. Can the belligerents transport their requirements without the assistance of American tankers? The following tables give the world's commercial tanker fleets and also the fleets that are 100 per cent government owned or operated.

In addition to the above tankers, a total of 11 will be added upon completion of the present construction program, nine French vessels with an additional capacity of 14,000 tons, and two German vessels with a small but unknown tonnage.

From a study of the above tables, it can be seen that the commercial tanker fleet of Great Britain (4,008,000 tons)—exclusive of Canadian and other British tankers used for her colonial purposes—her naval oilers (378,000 tons), the French commercial tanker fleet (363,000 tons) and her naval oilers (94,000 tons), indicates a capacity of 4,843,000 tons. At six round trips per year, they can account for over 29,000,000 tons, leaving a shortage of 28,000,000 tons if their wartime requirements are to be met. This means that they would need a tanker fleet of 4,667,000 tons in addition to their own. In the event that the American fleet could not be used, Great Britain and France would be forced to either purchase or lease tankers from outside sources. The Dutch, Norwegian and Panamanian tanker fleets have a combined capacity of 4,475,000 tons capable of transporting 26,850,000 tons. The French ships under construction, which will be completed soon, will be able to transport the remaining 1,000,000 tons required. It is therefore apparent that the transportation problem can be solved by Great Britain and France, whereas Germany not having free access to the seas, is not even confronted with the problem of transportation in the same manner, her dependence being entirely upon European sources, previously discussed.

TABLE 12—WORLD COMMERCIAL TANKER FLEET

Country—	No. of vessels	Deadweight tonnage
Belgium	9	97,000
Canada	28	187,000
Denmark	14	160,000
France	40	363,000
Germany	31	303,000
Great Britain and Eire	410	4,008,000
Italy	78	571,000
Japan	39	519,000
Netherlands	112	843,000
Norway	262	2,957,000
Panama	49	675,000
Spain	16	115,000
Sweden	17	217,000
United States	418	4,137,000
Other British	32	325,000
Other countries	73	416,000
Total	1,628	15,893,000

TABLE 13—100 PER CENT GOVERNMENT-OPERATED OILERS OR TANKERS

Country—	No. of vessels	Deadweight tonnage
Argentina	12	89,000
Australia	1	5,000
Brazil	2	9,000
Chile	2	10,000
Colombia	1	3,000
France	16	94,000
Germany	5	*6,000
Great Britain	67	378,000
Greece	2	5,000
Italy	39	112,000
Japan	13	126,000
Mexico	2	9,000
New Zealand	1	7,000
Peru	1	4,000
Portugal	1	3,000
Siam	1	2,000
Spain	20	113,000
Sweden	1	1,000
Turkey	3	3,000
United States	21	232,000
Uruguay	1	1,000
U.S.S.R.	42	242,000
Total	254	1,454,000

*Plus.

Conclusions

1. Oil is the most important commodity in modern warfare.

2. The belligerent nations of Europe are unable to meet their requirements through production of crude oil or synthetic products, even in peacetime.

3. The wartime demands are estimated at three times the peacetime requirements.

4. Intensive warfare will result in complete crippling of refining plants, making all belligerents dependent on refined products from outside sources. Because of the blockade of Germany, she will be unable to obtain these products, whereas both Great Britain and France will. Germany may obtain products from Rumania, but the Soviet Union will be unable to supply her to any appreciable extent.

5. The damond will fall upon the exporting nations of North and South America, and upon the United States in particular. Transportation from the Orient is not feasible. North and South America have both the developed crude reserves and refining capacities to meet the estimated demands.

6. Great Britain and France do not have sufficient tankers to transport their requirements but can easily obtain them from Holland, Norway and Panama. Should these prove insufficient, they may construct or purchase others.

Acknowledgments

The author wishes to take this opportunity of thanking the numerous individuals, organizations and publications who so kindly granted interviews and contributed material contained in this article. Because of the delicate positions now occupied by many of these individuals, the author does not deem it wise to name them. He does, however, wish to give special thanks of M. Pierre Lamal, director of the Journal des Petroles, of Brussels, and M. and Mme. Dichter, directors of La Revue Petrolifere, of Paris.

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Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ont., Oct. 14. — On the Del Bonita structure in southern Alberta Terminal Oil Co.'s No. 2, NW¼ Section 7-1-21w4, bottoming in the upper Madison limestone at 5,211 ft., was given two acid treatments, increasing the flow of gas and light crude. Flush production after first acidization was estimated about 300 bbl. a day, but it pinched down. After the second treatment, swabbing yielded about 525 bbl. in 35 hours. The product is 37° crude. Swabbing was continued for one tour daily pending installation of pumping equipment, when a definite production test will be made. Storage tanks are being erected.

The flush production is the largest yet secured in southern Alberta outside Turner Valley, and indicates possibilities of an important new field, which may extend to the related Twin River and Spring Coulee structures. The location is about 45 miles southwest of Lethbridge, and north of the Cut Bank field in Montana. Terminal's No. 2 got the Madison lime at 5,122 ft. and cemented casing for a production test at 5,211 ft. The test was sponsored by a group including S. Myron Zandmer, Frank Ruben, and E. L. Cord.

The immediate structure is estimated 6 miles long and 3 miles wide with a short, steep, east flank and the west flank extending to the axis of the Alberta syncline. It is one of a series along the border on the west flank of the Sweetgrass arch. The structures were discovered in 1929 by Nordon Corp. and partially proven by several faulty completions, in which good indications of light crude were encountered in the top of the lime. The potential oil area includes the related Del Bonita, Twin River, Ross Lake, and Spring Coulee folds, which are believed to be comparable to the Oklahoma City, Yates, Big Lake, and Hobbs fields in the United States.

On the Spring Coulee structure E. L. Cord's No. 1, LSD 16, Section 35-3-23w4, is below 4,600 ft. and expected to get the producing horizon just below the Madison contact some time this month.

Turner Valley Tests

In the southwest extension of Turner Valley Extension Royalties' No. 2, LSD 11, Section 17-18-2w5, finished in the lime around 8,254 ft., tested 1,398 bbl. a day on 1-in. choke. Permanent allowable is expected around 460 bbl.

In Section 29-18-2w5 Royal Canadian Oil Co.'s No. 3, LSD 12, has finished tests of the upper porous zone of the lime at 8,656 ft., 266 ft. in the Madison. Porosity extended for 90 ft., and a good production was indicated, but drilling will likely be continued to the lower porous zone.

In Section 32-18-2w5 Royalite Oil Co.'s No. 42, LSD 4, completed drilling at 8,491 ft., 10 ft. in the black lime, and is testing production.

In West Central Turner Valley East Crest Oil Co.'s No. 4, LSD 8, Section 6-19-2w5, finished 500 ft. in the Madison lime at 8,040 ft., has been alternately cleaning out and producing. An early test through 1-in. choke indicated only 113 bbl., but the upper zone after cleaning developed a good production. Tubing is being pulled and the lower horizon cleaned. It is expected the operations will result in a fairly large producer.

In Section 25-19-3w5 Argus Royalties' No. 1, LSD 14, made production test of the upper porous zone around 7,020 ft., about 311 ft. in the lime, before deepening to the lower porous zone.

Crude Allowables Increased

Effective October 11, the Alberta Conservation Board has increased the aggregate allowable for Turner Valley crude producers from 23,000 to 26,000 bbl. daily. The increase was made necessary by heavy withdrawals from storage in the past few weeks.

Under the new schedule of allowables, Home Oil Co.'s No. 2 Millarville, in North Turner Valley, is still the largest well, with 859 bbl. Other major producers are: Anglo-Canadian Oil Co.'s No. 6, Section 17-18-2w5, 696 bbl.; Vulcan-Brown's No. 1, Section 5-19-2w5, 652 bbl.; Royalite Oil Co.'s No. 36 and Extension Royalties' No. 2, 622 bbl. each; and Extension's No. 1, 600 bbl.

West Side Drilling

In Section 32-18-2w5, on the Turner Valley west flank, Vantage Oils' No. 1, LSD 12, has resumed from 1,628 ft., running one tour daily. Pacific Petroleums (formerly West Turner Petroleums) is arranging to finance drilling of No. 4 well in LSD 3. The company now has three producers in Section 32, with aggregate allowables of 1,089 bbl.

In Section 29-18-2w5 Command Oils' No. 2, LSD 11, is in the lower Benton formation below 5,379 ft.

Ontario Drilling

In the Malahide field, Elgin County, Lot 10, Concession 4, Malahide Township, got a small show of gas in the Guelph formation below 1,000 ft. and is deepening below 1,325 ft. for a test of the Clinton formation. Union's No. 18, Lot 24, Concession 5, finished a good gasser around 1,050 ft. Union's No. 19, Lot 14, Concession 4, finished a fair gasser at 1,095 ft. Union's No. 20, Lot 8, Concession 4, got a small gas show in the Guelph and is deepening below 1,250 ft. for a test of the Clinton. Union's No. 21, NW cor. Lot 25, Concession 5, finished a dry hole at 1,000 ft. Union's No. 22, SW¼ Lot 27, Concession 5, got a little gas in the Guelph and is deepening below 1,225 ft. for a Clinton test. Union's No. 23, W½ Lot 26, Concession 5, is below 1,055 ft., with some gas from the Guelph, and will be a commercial producer in that horizon. Union's No. 25, SE¼ Lot 16, Concession 5, is moving in equipment.

In the Haldimand field Union Gas Co.'s No. 239, Lot 13, Concession 5, Woodhouse Township, finished a dry hole around 1,025 ft. Union's No. 240, Lot 8, Concession 13, Walpole Township, is drilling. Union's No. 241, Lot 1, Concession 4, Rainham Township, is finishing around 850 ft. and will probably be a fair gasser. Union's No. 243, Lot 4, Concession 2 North, Dunn Township, is below 625 ft. In the Dawn field Union Gas Co.'s No. 102, Lot 10, Concession 9, Camden Gore, finished at 1,880 ft. after getting a few small gas shows, and was abandoned. In Enniskillen Township, Lambton County, Volcanic Gas & Oil Co.'s No. 1 John Mackesy farm, Lot 15, Concession 1, is below 1,200 ft. In Chatham Township, Kent County, Union Gas Co.'s No. 20, NE¼ Lot 13, Concession 10, finished at 1,865 ft. with 140,000 cu. ft. of gas a day, natural production. Union's No. 21, SE cor. N½ Lot 12, Concession 10, is around 1,000 ft.

In the De Clute field, Kent County, Union Gas Co.'s No. 46 Pardo farm, W½ Lot 138, Talbot Road North, finished at 1,585 ft. with only small gas shows, and has been abandoned.

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WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S. T. R.	Depth	Status—
Union Oil, No. 21 Squires, Santa Maria, Santa Barb.	28- 9-34	4,058	P.B. 3,950
Union Oil, No. 2-3 O'Donnell, Santa Maria, Santa Barb.	21-10-34	3,160	sd. sh. drig.
Lomas, E. H., No. 1 Reg, Santa Maria, Santa Barbara	29-19-34	4,840	sd. sh. drig.
Sunset Oil, No. 1 Shore, Carpinteria, Santa Barbara	32- 4-25	2,790	hd. sh. drig.
Trans-Oceanic Oil, No. 1 Mesa, Santa Barbara, S. B.	28- 4-27	1,642	sd. sh. drig.
Coronet Oil, No. 1 Crown, Ojai, Ventura	17- 4-21	2,298	pump water
Renard Oil, No. 1, Sespe, Ventura	6- 4-19	310	hd. sh. drig.
Galveston Oil, No. 1 Basola, Bardsdale, Ventura	5- 3-19	3,139	pump 10 b.d.
Bolsa Chica Oil, No. 5 Snow, Piru, Ventura	4- 4-18	2,997	pump 100 b.d.
Continental Oil, No. 12 Grubb, San Miguelito, Vent.	24- 3-24	6,294	sd. sh. drig.
C. C. M. Oil, No. 2-B Hobson, Rincon, Ventura	8- 3-24	4,046	will deepen
C. C. M. Oil, No. 29-B Hobson, Rincon, Ventura	16- 3-24	4,800	cleaning out
Tide Water A. O., No. 42 V.L.W., Ventura Ave., Vent.	23- 3-23	7,960	sd. sh. drig.
Tide Water A. O., No. 44 V.L.W., Ventura Ave., Vent.	23- 3-23	7,383	sd. sh. drig.
Tide Water A. O., No. 15 McGonigle, Vent. Ave., Vent.	23- 3-23	8,980	sd. sh. drig.
Tide Water A. O., No. 16 McGonigle, Vent. Ave., Vent.	23- 3-23	6,453	sd. sh. drig.
Tide Water A. O., No. 66 Lloyd, Ventura Ave., Vent.	26- 3-23	5,845	sd. sh. drig.
Tide Water A. O., No. 121 Lloyd, Ventura Ave., Vent.	23- 3-23	8,000	sd. sh. drig.
Tide Water A. O., No. 21 Hartman, Vent. Ave., Vent.	22- 3-23	5,295	sd. sh. drig.
Shell Oil, No. 102 Taylor, Ventura Ave., Ventura	29- 3-23	7,590	O.S. drig.
Shell Oil, No. 103 Taylor, Ventura Ave., Ventura	21- 3-23	1,894	sd. sh. drig.
Shell Oil, No. 104 Taylor, Ventura Ave., Ventura	21- 3-23	5,341	flow 260 b.d.
Shell Oil, No. 34 Edison, Ventura Ave., Ventura	21- 3-23	8,731	flow 820 b.d.
General Pet., No. 16 Barnard, Ventura Ave., Ventura	28- 3-23	8,452	O.S. drig.
Cal. Alliance Pet., No. 1 Hartman, Vent. Ave., Vent.	22- 3-23	7,104	sd. sh. drig.
Lloyd Corp., No. 3 Dabney, Ventura Ave., Ventura	23- 3-23	9,090	sd. sh. drig.
Lloyd Corp., No. 4 Dabney, Ventura Ave., Ventura	23- 3-23	8,396	sd. sh. drig.
Trico O. & G., No. 1 Newland, Delano gas field, Kern	29-24-23	2,512	gas zone
Belridge Oil, No. 1-27, North Belridge, Kern	1-28-20	7,350	sd. sh. drig.
Belridge Oil, No. 28-15, North Belridge, Kern	28-27-20	6,175	sd. sh. drig.
Belridge Oil, No. 26-39, North Belridge, Kern	26-27-20	8,275	redrig. 8,100
Tide Water A. O., No. 24, North Belridge, Kern	21-27-20	7,860	sd. sh. drig.
Abbott, F. E., No. 1 Gamble, Blackwell's Corner, Kern	7-27-20	214	sd. sh. drig.
Texas Co., No. 1 McLennan, Shale Hills, Kern	19-27-19	1,660	sd. sh. drig.
Texas Co., No. 1 Beer, Devil's Den, Kern	6-26-19	1,291	sd. sh. drig.
O'Reilly, Frances, No. 2 Seale, Edison, Kern	5-30-29	4,103	tested wet
Grizzly Bear Oil, No. 4 Kelley, Round Mountain, Kern	6-28-28	1,815	gr. sd. drig.
Dick, W. T., No. 3 Kern, Kern River, Kern	34-28-28	630	pump dry
Dick, W. T., No. 4 Kern, Kern River, Kern	34-28-28	652	pump 10 b.d.
Dick, W. T., No. 5 Kern, Kern River, Kern	34-28-28	650	rig to pump
Dick, W. T., No. 8 Kern, Kern River, Kern	34-28-28	471	sd. sh. drig.
Crestmont Oil, No. 1 Hesse, Kern River, Kern	22-28-28	816	sd. sh. drig.
Sleeper Ridge Oil, No. 1 Kern, Kern River, Kern	15-29-28	1,410	will deepen
Helm & Smith, No. 14 Kern, Kern River, Kern	34-28-28	683	rig to pump
Helm & Smith, No. 15 Kern, Kern River, Kern	34-28-28	395	sd. sh. drig.
Hast Oil, No. 6 Kern, Kern River, Kern	34-28-28	594	sd. sh. drig.
D. B. K. Co., No. 10 Kern, Kern River, Kern	34-28-28	490	pump 5 b.d.
Ring Oil, No. 5-A Jones, Mount Poso, Kern	29-26-28	1,779	rig to pump
Ring Oil, No. 8 Shapiro, Mount Poso, Kern	32-26-28	1,680	O.S. drig.
Chevalier Oil, No. 4 S.P., Mount Poso, Kern	3-27-28	1,501	pump 105 b.d.
Hill and associates, No. 1-A West, Mount Poso, Kern	35-26-28	710	idle
Hogan Pet., No. 1 Wible, Mountain View, Kern	23-30-29	3,480	sd. sh. drig.
Allied Pet., No. 33 Allied, Mountain View, Kern	19-30-29	1,946	sd. sh. drig.
Texas Co., No. 2 Jewett, Arvin, Kern	16-31-29	6,472	recmtd. 6,385
Standard Oil, No. 5 Jewett, Arvin, Kern	16-31-29	6,090	cmtd. 5,855
Richfield Oil, No. 2 Mott, Arvin, Kern	9-31-29	4,593	sd. sh. drig.
Morton, L. C., No. 1 Barlow Farms, Arvin, Kern	25-31-29	2,161	sd. sh. drig.
Western Gulf Oil, No. 43-B, KCL, Fruitvale, Kern	22-29-27	3,826	flow 80 b.d.
Meridian Pet., No. 2 Deep Test, Fruitvale, Kern	23-29-27	7,930	cleaning out
Union Oil, No. 4-23 Bowerbank, Goose Lake, Kern	25-29-24	10,100	Miocene, drig.
Union Oil, No. 41-34, KCL, Rio Bravo, Kern	34-28-25	8,780	cleaning out
Superior Oil, No. 1 Weber, Rio Bravo, Kern	27-28-25	7,998	sd. sh. drig.
Standard Oil, No. 1 Ross, Greeley, Kern	20-29-26	10,456	milling
Standard Oil, No. 11-20, KCL, Greeley, Kern	18-29-26	9,250	sd. sh. drig.
Standard Oil, No. 11-21, KCL, Greeley, Kern	18-29-26	7,970	sd. sh. drig.
Standard Oil, No. 12-5, KCL, Northwest Greeley, Kern	7-29-26	9,781	gr. sd. drig.
General Pet., No. 1 Sullivan, Northeast Greeley, Kern	12-29-26	10,640	hd. sh. drig.
Continental Oil, No. 2-D, KCL, Bellevue, Kern	14-30-26	13,760	hd. sh. drig.
Shell Oil, No. 72-25-A, KCL, Ten Section, Kern	25-30-25	8,200	O.S. drig.
Tide Water A. O., No. 46-7-E, KCL, Strand, Kern	7-30-26	8,140	hd. sh. drig.
Shell Oil, No. 75-12-B, KCL, Strand, Kern	12-30-25	6,772	sd. sh. drig.
Ohio Oil, No. 15-E, KCL, Canal, Kern	14-30-25	6,070	sd. sh. drig.
Shell Oil, No. 32-14-A, KCL, Canal, Kern	14-30-25	8,285	flow 360 b.d.
Richfield Oil, No. 12-33-A, KCL, Tupman, Kern	33-30-25	9,331	P.B. 9,040
Richfield Oil, No. 67-4-B, KCL, Cole's Levee, Kern	4-31-25	8,762	O.S. drig.
Richfield Oil, No. 76-4-B, KCL, Cole's Levee, Kern	4-31-25	7,950	sd. sh. drig.
Standard Oil, No. 20-2, KCL, Cole's Levee, Kern	9-31-25	8,660	sd. sh. drig.
Standard Oil, No. 20-3, KCL, Cole's Levee, Kern	9-31-25	8,198	sd. sh. drig.
Standard Oil, No. 20-4, KCL, Cole's Levee, Kern	9-31-25	8,455	O.S. drig.
Ohio Oil, No. 4-F, KCL, Cole's Levee, Kern	11-31-25	8,320	sd. sh. drig.
Ohio Oil, No. 5-F, KCL, Cole's Levee, Kern	10-31-25	8,254	sd. sh. drig.
Tide Water A. O., No. 81, KCL, Cole's Levee, Kern	14-31-25	10,120	O.S. drig.
Union Oil, No. 58-11, KCL, Cole's Levee, Kern	11-31-25	9,861	sd. sh. drig.
Baker & Sonne, No. 1 Leyse, Midway-Sunset, Kern	20-32-23	2,730	redrig. 2,510
Quality Oil, No. 6 W.P., Midway-Sunset, Kern	27-32-23	1,941	cleaning out
Merritt-Annex Oil, No. 8 Fried, Midway-Sunset, Kern	25-12-24	2,494	recmtd. 2,311
General Pet., No. 1 B.V.A., Midway-Sunset, Kern	1-31-24	9,590	hd. sh. drig.
Signal O. & G., No. 6 Kendon, Midway-Sunset, Kern	35-32-23	1,382	sd. sh. drig.
Shell Oil, No. 45-9 B.V.A., Midway-Sunset, Kern	9-32-25	8,570	sd. sh. drig.
National Oil, No. 34 Sunset, Midway-Sunset, Kern	35-32-23	1,084	sd. sh. drig.
Standard Oil, No. 3-5-C fee, Midway-Sunset, Kern	5-32-23	2,497	pump 103 b.d.
Ohio Oil, No. 43-3-B, KCL, Paloma, Kern	3-32-26	2,181	sd. sh. drig.
Richfield Oil, No. 81-36 B.V.A., Buena V. Lake, Kern	36-31-25	6,170	sd. sh. drig.
Continental Oil, No. 1-F, KCL, San Emidio, Kern	5-10-21	8,980	gr. sd. drig.
Bannow, L. E., No. 1 Irwin, San Emidio, Kern	15-10-23	1,126	gas show
Shell Oil, No. 52-2-13-A, KCL, San Emidio, Kern	13-11-22	11,382	hd. sh. drig.
Par Pet., No. 1 Line, Antelope Valley, Kern	32-25-17	2,660	sd. sh. drig.
Union Oil, No. 57-18 Cook, N.E. Coalinga, Fresno	18-19-16	3,374	sd. sh. drig.
Wilshire Annex, No. 1 Kearns, Cent. Coalinga, Fresno	30-19-16	8,340	sd. sh. drig.
Lytle, R. S., agent, No. 42-7-F, S.E. Coalinga, Fresno	7-20-16	7,622	flow 1,870 b.d.
Lytle, R. S., agent, No. 64-7-F, S.E. Coalinga, Fresno	7-20-16	5,470	sd. sh. drig.
Lytle, R. S., agent, No. 28-18-F, S.E. Coalinga, Fresno	18-20-16	7,242	hd. sd. drig.
Texas Co., No. 3 Exeter fee, S.E. Coalinga, Fresno	6-20-16	7,180	sd. sh. drig.
Standard Oil, No. 62-13-C fee, S.E. Coalinga, Fresno	13-20-15	6,185	sd. sh. drig.
Standard Oil, No. 86-13-C fee, S.E. Coalinga, Fresno	13-20-15	7,454	flow 1,830 b.d.
Superior Oil, No. 5 fee, S.E. Coalinga, Fresno	7-20-16	7,670	hd. sh. drig.
Superior Oil, No. 3 Cagle, S.E. Coalinga, Fresno	6-20-16	7,012	flow 3,620 b.d.
Parkford, E. A., No. 1 Valley, S.E. Coalinga, Fresno	24-20-15	8,240	dry; abd.
Superior, No. 4 Huffman, Kettleman North, Fresno	29-21-17	8,680	sd. sh. drig.
K. N. D. A., No. 25-22-Q, Kettleman North, Kings	22-22-18	6,880	sd. sh. drig.
K. N. D. A., No. 38-22-Q, Kettleman North, Kings	22-22-18	5,197	sd. sh. drig.
K. N. D. A., No. 47-22-Q, Kettleman North, Kings	22-22-18	7,890	flow 2,075 b.d.
K. N. D. A., No. 25-26-Q, Kettleman North, Kings	26-22-18	7,920	completing
K. N. D. A., No. 47-26-Q, Kettleman North, Kings	26-22-18	5,464	sd. sh. drig.
K. N. D. A., No. 41-28-Q, Kettleman North, Kings	28-22-18	6,260	br. sh. drig.
Standard Oil, No. 2-19-J, Kettleman North, Fresno	19-21-17	10,873	O.S. drig.
Standard Oil, No. 27-19-J, Kettleman North, Fresno	19-21-17	9,195	sd. sh. drig.
Standard Oil, No. 72-19-J, Kettleman North, Fresno	19-21-17	9,070	sd. sh. drig.
Standard Oil, No. 27-7-Q, Kettleman North, Kings	7-22-18	9,190	fish D.P.
Standard Oil, No. 43-7-Q, Kettleman North, Kings	7-22-18	7,683	sd. sh. drig.
Standard Oil, No. 32-17-Q, Kettleman North, Kings	17-22-18	4,755	sd. sh. drig.
Standard Oil, No. 63-17-Q, Kettleman North, Kings	17-22-18	8,490	cleaning out
Standard Oil, No. 72-17-Q, Kettleman North, Kings	17-22-18	2,987	sd. sh. drig.
Standard Oil, No. 52-21-Q, Kettleman North, Kings	21-22-18	4,794	sd. sh. drig.
Standard Oil, No. 74-21-Q, Kettleman North, Kings	21-22-18	2,993	sd. sh. drig.
Standard Oil, No. 85-21-Q, Kettleman North, Kings	21-22-18	7,280	sd. sh. drig.
Standard Oil, No. 32-27-Q, Kettleman North, Kings	27-22-18	6,852	sd. sh. drig.
Standard Oil, No. 61-27-Q, Kettleman North, Kings	27-22-18	8,230	sd. sh. drig.
Compass Oil, No. 1 Points, Deer Creek, Tulare	8-23-26	405	sd. sh. drig.
Newton, S .M., No. 1 Stafford, Panorama, S. L. Obispo	18-31-21	5,660	sd. sh. drig.
Epco, Inc., No. 1 Epco, San Miguel, San Luis Obispo	27-25-13	6,090	idle
Priest Valley Pet., No. 1 Flat, Priest Valley, Monterey	22-20-12	822	sd. sh. drig.
Texas Co., No. 3 Eureka, Eureka, Humboldt	21- 3- 1	5,067	may redrl.
Silver Creek Oil, No. 1, Los Pinos, San Benito	11-17-11	260	sd. sh. drig.
Utilities Pet., No. 1, Rough & Ready Isl., San Joaquin	7- 1- 6	5,721	dry; abd.

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S. T. R.	Depth	Status—
General Pet., No. 15 Poggi, Torrance, Los Angeles	30- 4-13	877	sd. sh. drig.
Union Oil, No. 71 Callender, Dominguez, Los Angeles	32- 3-13	7,485	sd. sh. drig.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
B. ck., bottom choke.
Br. sh., brown shale.
B.S., basic sediment.
C.&P., cellar and pits.
Cd. or Crd., cored.
C.D., correct depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg., or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.S.T., drill-stem test.
D.P., drill pipe
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe-line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Recvd., recovered.
Rmg., reaming.
Redrig., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtrk. or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas, and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T. ck., top choke.
T.P., tubing pressure.
Tr., tract.
Tstd., tested.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.O.O., waiting on orders.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.R. or W.O.S.R., awaiting standard rig.
Wtr., water.

Union Oil, No. 72 Callender, Dominguez, Los Angeles	29-	3-13	7,400	flow 1,350 b.d.
Shell Oil, No. 100 Reyes, Dominguez, Los Angeles	33-	3-13	2,277	sd. sh. drig.
Union Oil, No. 35 Rosecrans, Rosecrans, Los Angeles	19-	3-13	3,796	sd. sh. drig.
Barnsdall Oil, No. 1 Darling, Rosecrans, Los Angeles	20-	3-13	8,957	cmtd. 8,732
South. Cal. Pet., No. 1 Slabaugh, Rosecrans, L. A.	19-	3-13	7,630	flow 240 b.d.
Basin Oil, No. 1 Beloil, Potrero, Los Angeles	28-	2-14	6,250	cleaning out
Casa Grande Oil, No. 1 Lopez, San Fernando, L. A.	1-	2-15	2,066	gr. sd. drig.
Tide Water A. O., No. 12 Porter, Aliso Canyon, L. A.	27-	3-16	2,897	hd. sd. drig.
Tide Water A. O., No. 11 Fernando, Aliso Can., L. A.	27-	3-16	4,240	O.S. drig.
Redwood Oil, No. 1-A Mitchell, Mont Canyon, L. A.	22-	4-15	510	sd. sh. drig.
Tamas Oil, No. 1 Perkins, Newhall, Los Angeles	14-	3-16	1,790	sd. sh. drig.
Barnsdall Oil, No. 8 R.S.F., Newhall, Los Angeles	27-	4-17	1,284	sd. sh. drig.
General Pet., No. 13 S.P., Wilmington, Los Angeles	2-	5-13	2,950	flow 580 b.d.
Brookline Oil, No. 4 Harbor, Wilmington, L. A.	4-	5-13	5,760	P.B. 3,690
Hancock Oil, No. 22-A Harbor, Wilmington, L. A.	2-	5-13	4,057	O.S. drig.
Long Beach Dev., No. 10-Y Harbor, Wilmington, L.A.	2-	5-13	3,917	completing
Long Beach Dev., No. 11-Y Harbor, Wilmington, L. A.	2-	5-13	4,037	recmtd. 3,555
Long Beach Dev., No. 12-Y Harbor, Wilmington, L. A.	2-	5-13	3,987	cmtd. 3,614
Long Beach Dev., No. 3-W Harbor, Wilmington, L. A.	3-	5-13	3,240	sd. sh. drig.
Long Beach Dev., No. 4-W Harbor, Wilmington, L. A.	3-	5-13	4,027	completing
Long Beach Dev., No. 5-W Harbor, Wilmington, L. A.	3-	5-13	2,492	sd. sh. drig.
Long Beach Dev., No. 7-W Harbor, Wilmington, L. A.	3-	5-13	2,161	sd. sh. drig.
Long Beach Dev., No. 12-X Harbor, Wilmington, L. A.	2-	5-13	2,090	sd. sh. drig.
McWherter, C. L., No. 4 Channel, Wilmington, L. A.	2-	5-13	1,998	sd. sh. drig.
Morgan, Roy, No. 1 Ruth, Wilmington, Los Angeles	35-	4-13	3,420	completing
Royalty Service., No. 3 Packard, Wilmington, L. A.	33-	4-13	5,716	O.S. drig.
Royalty Service, No. 1 Fleming, Wilmington, L. A.	32-	4-13	3,634	pump 60 b.d.
Royalty Service, No. 2-B Santa Fe, Wilmington, L. A.	33-	4-13	5,713	flow 195 b.d.
Signal Oil & Gas, No. 4-S.P., Wilmington, Los Angeles	3-	5-13	2,975	sd. sh. drig.
Union Pacific R. R., No. 118, Wilmington, L. A.	34-	4-13	2,990	sd. sh. drig.
Union Pacific R. R., No. 119, Wilmington, L. A.	3-	5-13	2,775	sd. sh. drig.
Union Pacific R. R., No. 120, Wilmington, L. A.	3-	5-13	3,155	sd. sh. drig.
Union Pacific R. R., No. 20-E, Wilmington, L. A.	3-	5-13	2,493	sd. sh. drig.
Kern Oil, No. 24 Monterey, Montebello, Los Angeles	2-	2-12	7,655	completing
Union Oil, No. 5 Wilcox, Montebello, Los Angeles	11-	2-12	7,534	tested wet
Union Oil, No. 7 Wilcox, Montebello, Los Angeles	11-	2-12	7,640	O.S. drig.
Union Oil, No. 10 Howard & Smith, Montebello, L. A.	11-	2-12	7,070	sd. sh. drig.
Union Oil, No. 7 Paul Howard, Montebello, L. A.	11-	2-12	7,445	sd. sh. drig.
Albertson Oil, No. 1 Schnakenburg, Montebello, L. A.	3-	2-12	7,686	tested wet
Beacon Oil, No. 1 Caneer, Montebello, Los Angeles	11-	2-12	5,660	sd. sh. drig.
Bush Oil, No. 1 Mihlfred, Montebello, Los Angeles	3-	2-12	3,360	sd. sh. drig.
Bush Oil, No. 1 Zanetti, Montebello, Los Angeles	3-	2-12	5,297	sd. sh. drig.
B-A Oil Prod., No. 1 H. & S., Montebello, Los Angeles	11-	2-12	7,634	completing
B-A Oil Prod., No. 2 H. & S., Montebello, Los Angeles	11-	2-12	7,635	completing
B-A Oil Prod., No. 1 Ryder, Montebello, Los Angeles	11-	2-12	7,585	flow 550 b.d.
Caminol Co., No. 2-16 Cowan, Montebello, Los Angeles	2-	2-12	5,846	sd. sh. drig.
Caminol Co., No. 3-17 Cowan, Montebello, Los Angeles	3-	2-12	2,714	sd. sh. drig.
C. A. P. Oil, No. 1 Dutch, Montebello, Los Angeles	11-	2-12	4,996	cleaning out
Crestline Oil, No. 1 Beverly, Montebello, Los Angeles	11-	2-12	6,170	sd. sh. drig.
Crail Bros., No. 2 Cowan, Montebello, Los Angeles	1-	2-12	4,986	sd. sh. drig.
Dutch Oil, No. 1 Scheinik, Montebello, Los Angeles	3-	2-12	6,850	sd. sh. drig.
East Mont. Oil, No. 1 Rissinger, Montebello, L. A.	12-	2-12	7,520	O.S. drig.
East Mont. Oil, No. 2 Rissinger, Montebello, L. A.	12-	2-12	7,823	flow 750 b.d.
Fullerton Oil, No. 2 Trustee, Montebello, Los Angeles	12-	2-12	7,605	completing
Fullerton Oil, No. 2 Scott, Montebello, Los Angeles	1-	2-12	7,298	sd. sh. drig.
Graham-Loftus Oil, No. 2 Coffman, Montebello, L. A.	11-	2-12	5,994	sd. sh. drig.
Hathaway Oil, No. 2 Dore, Montebello, Los Angeles	11-	2-12	6,605	redrlg. 6,240
Larson Drlg., No. 3 Van Deusen, Montebello, L. A.	11-	2-12	4,580	sd. sh. drig.
Mabee, J. E., No. 36 Monterey, Montebello, L. A.	3-	2-12	7,380	sd. sh. drig.
McKeon, John, No. 1 Travis, Montebello, Los Angeles	11-	2-12	7,625	flow 490 b.d.
Montebello Res. Oil, No. 1 Reservoir, Montebello, L.A.	2-	2-12	7,532	O.S. drig.
Mono Oil, No. 1 Foreman, Montebello, Los Angeles	2-	2-12	6,470	sd. sh. drig.
Montebello Oil, No. 1 Nordon, Montebello, L. A.	3-	2-12	5,453	sd. sh. drig.
Pacific-Amer. Oil, No. 1 Groen, Montebello, L. A.	11-	2-12	6,580	sd. sh. drig.
Pongratz Pet., No. 2 Newmark, Montebello, L. A.	3-	2-12	5,631	cleaning out
Sunset Oil, No. 1 Howell, Montebello, Los Angeles	11-	2-12	7,566	O.S. drig.
Sunset Oil, No. 1 Robinson, Montebello, Los Angeles	12-	2-12	3,278	sd. sh. drig.
Star Pet., No. 1 Community, Montebello, Los Angeles	11-	2-12	7,590	completing
Star Pet., No. 1 Caneer, Montebello, Los Angeles	11-	2-12	3,454	sd. sh. drig.
Texas Co., No. 1 Wilcox, Montebello, Los Angeles	3-	2-12	7,060	sd. sh. drig.
Traders Oil, No. 2 Center, Montebello, Los Angeles	2-	2-12	5,946	sd. sh. drig.
United Mont. Oil, No. 1 Lot, Montebello, Los Angeles	11-	2-12	7,666	completing
United Mont. Oil, No. 2 Lot, Montebello, Los Angeles	11-	2-12	6,899	sd. sh. drig.
United Mont. Oil, No. 3 Lot, Montebello, Los Angeles	11-	2-12	4,283	sd. sh. drig.
Wood-Callahan Oil, No. 1 Thill, Montebello, L. A.	11-	2-12	5,106	cmtd. fish
York Oil, No. 1 Lehman, Montebello, Los Angeles	10-	2-12	7,440	O.S. drig.
York Oil, No. 6 Mulholland, Montebello, Los Angeles	2-	2-12	6,175	sd. sh. drig.
York Oil, No. 1 Long, Montebello, Los Angeles	3-	2-12	6,792	sd. sh. drig.
Kelso, F. W., No. 1 Brea, Puente Hills, Los Angeles	13-	2-10	2,405	fish D.P.
Hilldon Oil, No. 3 Amebco, Long Beach, Los Angeles	13-	4-13	5,290	completing
Dormax Oil, No. 1 Signal, Long Beach, Los Angeles	30-	4-12	9,640	sd. sh. drig.
Atlantic Oil, No. 12 Signal, Long Beach, Los Angeles	19-	4-12	2,992	sd. sh. drig.
Richfield Oil, No. 8-B City, Long Beach, Los Angeles	29-	4-12	3,560	sd. sh. drig.
El Hondo Pet., No. 1 Venango, Long Beach, L. A.	24-	4-13	7,780	sd. sh. drig.
Rolling Hills Pet., No. 1 Weston, Palos Verdes, L. A.	27-	4-14	6,430	sd. sh. drig.
Traders Oil, No. 1 Wagner, Richfield, Los Angeles	22-	3- 9	3,650	tested wet
Great Northern Oil, No. 1 Oak, Richfield, Los Angeles	28-	3- 9	1,300	sd. sh. drig.
Sonwell Oil, No. 1 Anaheim, East Coyote, Orange	13-	3-10	3,185	sd. sh. drig.
Master Pet., No. 1 Wright, East Coyote, Orange	19-	3- 9	4,160	will deepen
Southwest Expl., No. 22 State, Hunt. Beach, Orange	10-	6-11	5,059	fish D.P.
Sherin Oil, No. 4 Farnsworth, Hunt. Beach, Orange	34-	5-11	3,600	pump water
Owen, W. D., No. 1 Montgomery, Hunt. Beach, Orange	36-	5-11	1,250	idle
Petremont Oil, No. 2 Burton, Hunt. Beach, Orange	36-	5-11	320	sd. sh. drig.

OKLAHOMA

Week Ending October 14

NORTHERN OKLAHOMA

Caddo County

Sinclair Prairie Oil Co. No. 1 Gorman, SW NW NW Sec. 1-16-13w. S. heavy oil; cd. 6,442-49 ft.; Wdfrd. 6,600 ft.; drlg. 6,767 ft.

Canadian County

W. R. Ramsey's No. 1 Mansfield. C NW NE Sec. 16-14-9w. Lvtn. 6,250-80 ft., N.S.; drlg. sh. 7,217 ft.

Cleveland County

Nels Burton No. 1 Boggs. NE NE SE Sec. 16-9-2w. 2nd Wlx. 7,585 ft.; T.D. 7,646 ft.; P.B. 7,473 ft.; S.D. with 1,700 ft. oil and 1,000 ft. W.I.H.

Nels-Burrton No. 1 Hirsch, NW NW NE Sec. 17-9-2w. O.W.P.B.; O.T.D. 7,692 ft.; T.D. 7,695 ft.; swbd. 250 B.F. in 24 hrs.; 10% B.S.

Sinclair-Prairie No. 1 Ward, SE SE SE Sec. 30-7-1. Hntn. 6,185 ft.; Vla. 6,408 ft.; open 30 min. at 6,800 ft., rec. S. W.; P.B. to 6,782 ft.; drld. plug; fresh wtr. and scum oil; to acd.

Comanche County

Mid Night Oil No. 1 Howe, NW NW NE Sec. 30-2-13w. O.W.D.D.; O.T.D. 703 ft.; drlg. 906 ft.

Creek County

Sunray Oil Co. No. 1 Harris, SW SW NE Sec. 30-14-7. T.D. 2,927 ft.; est. 370,000 cu. ft. gas.

Garvin County

Robinson & Midco's No. 1 Clay, SW SW NW Sec. 21-4-3. Drlg. 1,405 ft.

Grady County

Sinclair Prairie's No. 4 Charleston, NE NE SE Sec. 27-5-8w (O.W.D.D.); gas 3,330-50 ft.; drlg. 3,756 ft.

Grant County

Magnolia Pet. Co.'s No. 1 Margay-Johnson, SW SW NE Sec. 28-25-8w. Lost circ. 5,944 ft., T.D.

Jackson County

English Drlg. Co.'s No. 1 Aetna Life, SE SE NE Sec. 26-3-20w. Drlg. 955 ft.

Jefferson County

H. M. Weir No. 1 Carmichael, NE NE SW Sec. 23-7s-7w. Drlg. 3,535 ft.

Kingfisher County

Anderson-Prichard No. 1 Geis, C NE SW Sec. 15-18-9w. Lvtn. 6,450-6,510 ft.; drlg. hd. Miss. L. 8,206 ft.

Ace Gutowsky No. 1 Lankford, NE NE SE Sec. 34-17-6w. Miss. 7,014 ft.; Woodford 7,531 ft.; Msnr. 7,562 ft.; Wlx. 8,105 ft.; 2nd Wlx. 8,275 ft.; T.D. 8,330 ft.; S.D.O.

Kiowa County

Bollen-Dillard & Roberts No. 1 Holcomb, NE NE SW Sec. 25-7-19w. T.D. 1,400 ft.; S.D.; csg.

Hagerling et al No. 1 Bozeman, SE SE NE Sec. 14-5-18w. Drlg. 1,286 ft.

C. J. Hagerling No. 1 Kimray, SW SW NW Sec. 36-5-18w. Drlg. 1,500 ft.

Lincoln County

Black Gold No. 1 Locquchment, NE NE NE Sec. 28-14-6. T.D. 3,175 ft.; est. 5 B.O.P.D.; S.D.

R. L. Kemp's No. 1-A Burke, NE SW NE Sec. 20-17-6. Prue 2,864-2,908 ft., T.D.; shot and C.O.

McIntosh County

W. B. Pine No. 1 Marlin, C N½ SE NE Sec. 14-11-16. Gas sd. 2,360-72 ft., T. D.; ga. 4,500,000 cu. ft. gas; comp.

Scruggs et al's No. 1 Lanning, SE SW SW Sec. 19-12-15. Drlg. 2,756 ft.

Noble County

Franks & Ellis' No. 1 Stranks, SW SW NW Sec. 35-24-1w. T.D. 1,045 ft.; fighting cave.

Oklahoma County

Hall & Briscoe No. 1 Thompson, SW SW NE Sec. 28-13-1. S.O. 4,803-27 ft.; T.D. 6,058 ft.; P.B. 5,185 ft.; tstg.

Osage County

Midco Oil Co.'s No. 1 Osage, NE NE SW Sec. 17-22-8. S.D. 2,847 ft.

Pawnee County

Ed Kelly No. 1 Hill, SW SW SE Sec. 1-21-5. Drlg. 3,250 ft.

Payne County

C. R. Hoagland No. 1 Stanolind, SE SE SW Sec. 27-18-4. Miss. 3,800 ft.; T.D. 3,905 ft.; D.P. stk.

C. F. Newsom's No. 1 Jones, NE NE SW Sec. 15-18-3. Drlg. 3,085 ft.

Pontotoc County

C. C. Marchant's No. 1 Phillips, C W½ SW NE Sec. 8-4-5. S.O. 2,040 ft.

Simpson-Roodhouse's No. 1 McKay, SW SW NE Sec. 1-2-7. Cg. 2,735 ft.

Pottawatomie County

Neustadt et al No. 1 Howeth, NE SE NE Sec. 14-6-4. Sd. and S.S.O. 3,455-60 ft.; S.D. 5,060 ft.

Sequoyah County

Thompson Bros. No. 1 Ruby, NW NW NE Sec. 30-12-22. Hntn. 1,451 ft.; T.D. 1,912 ft. (cor.); S.D.

Washita County

Continental Oil Co. No. 1 Proctor, C NW Sec. 28-10-20w. T.D. 14,540 ft.; recon ditioning mud before drlg. ahead.

SOUTHERN OKLAHOMA

Choctaw County

Letchfield & Kirksly No. 1 Schuester, SW SE SW Sec. 13-6s-14. Cd. 1,169-81 ft., L.&sd.; S.D. 1,184 ft. for core bbl.

Clyde Ross et al No. 1 Hardy, SE SE NW Sec. 21-7s-15. T.D. 1,634 ft.; W.O.C.

Jefferson County

Fred Land et al's No. 1 Barrett, NE SE SE Sec. 14-6s-6w. Sd. 1,852 ft., S.O.; D. P. stk. at 1,100 ft.; T.D. 1,890 ft.

Love County

Neff et al's No. 1 Brahma, NW NW SW Sec. 35-6s-2e. S.S.O. 1,555-90 ft.; drlg. 1,978 ft.

Marshall County

Hughes et al No. 1 Vittitto, C NE SE Sec. 11-5s-4e. O.W.D.D.; O.T.D. 7,100 ft.; T.D. 7,110 ft.; S.D.

Johnson et al No. 1 Godfrey, SW SE NE Sec. 14-6s-6e. Drlg. 2,269 ft.

KANSAS

Week Ending October 14 (Descriptions are East unless marked otherwise)

Barton County

Aylward Prod. et al's No. 1 Harzman, C W½ NW SW Sec. 33-16s-11w. Drlg. 2,910 ft.

B. B. & M. Drlg. Co.'s No. 1 Krier, CEL SE SE Sec. 30-16-11w. Drlg. 1,495 ft.

Crown Pet. Co. No. 1 Marchand, NE SE NW Sec. 13-20-11w. Drlg. 2,910 ft.

Seaney & Ciampitt's No. 1 Schauf, CSL E½ SW Sec. 1-16-12w. Drlg. 2,940 ft.

Butler County

Allison & Talbott's No. 1 Zink, SE SE NE Sec. 32-29-5. Drlg. 255 ft.

Carey & Jennings No. 1 Kelly, C SW Sec. 20-27-4. S.D. 2,660 ft.

Cromwell & Lewis No. 1 Stern, NW NW NW Sec. 27-27-6e. M.I.M.

Marvlyn Oil et al No. 1-A Hoard. SW NE NE Sec. 28-29-3. Lans. 1,625 ft.; S.S.O. 2,095 ft.; drlg. 2,400 ft.

Coffey County

Hollett's No. 1 Butler. SE SW SE Sec. 28-20-15. Rng. 8-in. 709 ft.

Cowley County

Garden's No. 1 Rahn. SW SW NW Sec. 13-34-5. Drlg. 3,258 ft.

E. B. Shawyer's No. 1 Henderson. C W½ NE NE Sec. 4-33-6. Drlg. 1,750 ft.

Gerald Smith et al's No. 1-B Haney, CEL NW SW Sec. 9-33-6. Drlg. 2,950 ft.

Dickinson County

Franks et al No. 1 Huffman, NW NW SW Sec. 11-13-1. Hntn. 2,807 ft.; Vla 3,048-55 ft.; S.S.O. 3,156-65 ft.; fsg. 3,170 ft.

Douglas County

Greenway Oil Co.'s No. 1 Grosdedier, C E½ SE NE Sec. 24-13-20. S.D. 470 ft.

Franklin County

Security O. & G. Co. No. 1 Teall, C SW NW Sec. 11-17-17. Rng. 8-in. 1,050 ft.

Greenwood County

Chas. Barker's No. 1 Gregg, SW NW SE Sec. 35-25-12. (O.W.D.D.). O.T.D. 1,660 ft.; drlg. 1,955 ft.

Henderson & Marcus' No. 1-A Smith, NW NW SE Sec. 8-24-11. Rng. 10-in. 960 ft.

A. A. Hinze et al's No. 1 Hester, NW SW NE Sec. 1-22-12. S.D. 510 ft.

Marvlyn Oil Co.'s No. 1 Burke, NE NE SW Sec. 27-24-11. R.U. mch.

Lawrence Spencer's No. 1 Edwards, NW NW SW Sec. 32-24-12. Drlg. 865 ft.

Jefferson County

Continental Oil's No. 1 Berridge, NW NW SW Sec. 8-9-17. Miss. 2,040 ft.; drlg. 2,450 ft.

C. L. Sheedy et al's No. 1 O'Neill, SE SW NW Sec. 34-8-19. Drlg. 2,350 ft.

Johnson County

F. O. McCain's No. 1 Lyons, NW SW NE Sec. 27-13-22. T.D. 700 ft.

Kingman County

Skelly Oil Co. No. 1 Miller, CSL N½ NE Sec. 31-27-10w. Set 7-in. 4,067 ft.; R.U. S.T.

Lyon County

Bruce's No. 1-A fee, NW NW NW Sec. 13-18-10. Bart. 1,985 ft.; Miss. 2,240 ft.; T.D. 2,333 ft.; D.&A.

Montgomery County

Lerke & Whortan No. 1 Clemmer, C SW SW Sec. 21-32-15. Arb. 1,530 ft.; set 5-in. csg.; W.O.C.

Osage County

J. M. Edwards No. 1 Detrick (O.W.D.D.), C NW SE Sec. 21-14-15. O.T.D. 1,200 ft.; S.G. in sh. 1,618-24 ft.; S.D. 1,650 ft.

Pratt County

Skelly Oil Co. No. 1 Royse, C SW Sec. 9-28-11w. Lans. 3,604 ft.; Vla. 4,246-49 ft.; T.D. 4,288 ft.; S.S.O.; 802,000 cu. ft. gas.

Rice County

Fred Jones et al No. 1 Benhke, NW SW NW Sec. 25-18-10w. S.O. 2,670-75 ft.; ga. 3,000,000 cu. ft. gas at 2,950 ft.; killed gas; drlg. 2,960 ft.

Phoenix Drlg. No. 1 Linville, SW SW SE Sec. 4-20-10w. Simp. 3,375 ft.; Arb. 3,388 ft.; acd. and S. 40 B.O. in 12 hrs.

Saco Oil's No. 1 Habeger, SE SE SW Sec. 12-18-10w. Drlg.

Vickers Pet. Co. No. 1-A Rodenberg, CNL NW¼ Sec. 8-18-10w. Lans. 2,930 ft.; Arb. 3,265-81 ft., T.D. N.S.

Rooks County

Broadview Oil No. 1 Baxter, NE SW SW Sec. 35-8-16w. Lans. 3,180 ft.; S.S.O.; T.D. 3,263 ft.; P. 89 B.O. in 7 hrs.; pot. 269 B.O.P.D.

Russell County

Ray Shaffer et al's No. 1 Shaffer, NE NE SW Sec. 9-13-11w. Rig.

Sedgwick County

Cameron & Spencer No. 1 Fields, NE NE NW Sec. 4-28-2. K.C. 2,516 ft.; Miss. 2,980 ft.; H.F.W. 3,007 ft.; T.D. 3,312 ft.; D.&A.

Stafford County

Continental Oil Co. No. 1 Keller, SE SE SE Sec. 15-24-13w. S.O. 3,733-43 ft., cd. 4,111-16 ft. and rec. 5 ft. sat.; T.D. 4,116 ft.; 3,900 ft. O.I.H.

Woodson County

Billerman et al's No. 1 Rauscher, CSL N½ NW Sec. 1-25-13. Drlg. 200 ft.

Bird, Hanley & Sheedy No. 1 Pingrey, C S½ SE Sec. 22-25-15. Spd.

Henderson & Keene's No. 2 Piper, NW NW SE Sec. 19-23-15. Spd. 60 ft.

MISSOURI

Adair County

Etting et al's No. 1 Clark, NW NE SE Sec. 8-63-14w. T.D. 200 ft.; caved; drlg. 160 ft.

Andrew County

Davis Bros. et al No. 1 Gee, NW NW SE Sec. 28-60n-35w. S.O. in Bart. 998 ft.; S.O. 2,065-75 ft.; Vla. 2,381 ft.; S. D. 2,407 ft.

Bates County

Monarch Roy.'s No. 1 Lee, C SW SE Sec. 11-39-30w. S.O. 834-36 ft.; T.D. 1,934 ft.; S.D.

Bollinger County

Delmund Oil No. 1 Cooper, SE SE SE Sec. 14-29-9e. S.D. 1,780 ft.

Buchanan County

Miller et al's No. 1 Carrough, C SE SE Sec. 24-57-35w. T.D. 95 ft.; installing elec. power.

Butler County

Coastal Pet. et al No. 1 Pierson, SW NE NW Sec. 27-22-6e. S.D. 149 ft. (cor.)

Charlton County

L. E. Mummert et al's No. 1 Rickert, NW NE SE Sec. 26-54-20w. Loc.

Clay County

Pabelo Dev. Co.'s No. 5-A Robb, NW NW SE Sec. 36-52-32. T.D. 600 ft., S.G.; S.D.O.

Clinton County

C. E. King et al's No. 1 Vanderau, SE NE SW Sec. 18-55-31w. T.D. 1,044 ft.; S.D.; repairs.

Daviess County

H. H. Francis' No. 1 Louis, SW NW SW Sec. 29-59-27w. S.D. cag. 485 ft.

DeKalb County

Geo. W. Moore No. 1 McQuate, NE SW SW Sec. 11-57n-31w. Miss. 1,075 ft.; S.D. csg. 1,500 ft.

Holt County

Brin & Nathan No. 1 Decker, C NW NW Sec. 1-61-38w. Drlg. below 793 ft.

Jackson County

Hulse & Christopher's No. 1 Wiston, NE NW SE Sec. 22-49-32w. S.D. 510 ft. to D.D.

Knox County

W. H. Oberithier et al's No. 1 Campbell, C NE Sec. 18-61-12w. C.&P.

Livingston County

Davis Bros. No. 1 Minning, SE SE NW Sec. 22-58-23w. Hntf. 783 ft.; Vla. 1,194 ft.; drlg. 1,220 ft.

Mercer County

Geo. W. Moore No. 1 Moss, NW SW SE Sec. 30-65-24w. Hntn. 1,273 ft.; T.D. 1,869 ft.; fsg. 6-in.

Platte County

Missouri Valley G. & O.'s No. 1 Herrington, C SE NE Sec. 12-51-34w. T.D. 645 ft.; D.&A.

Putnam County

Benedum & Trees' No. 1 Cooley, SE SE NW Sec. 33-64-17w. T.D. 965 ft.; to P.B. and recmt.

Randolph County

A. A. Ash et al's No. 1 Alexander, C SE Sec. 14-55-13w. Loc.

Ray County

Loomis-Jordan No. 1 Macey, NE SW NW Sec. 10-53-27w. S.O. 350 ft., T.D.; set csg.

Schuyler County

T. E. Baldwin No. 1 May Johnson, NW NE NE Sec. 21-65-15w. U.R. to 300 ft.

St. Charles County

Brooks et al's No. 1 Stewart, SE SE SE Sec. 4-46-2e. S.D.O. 507 ft.

IOWA

Fremont County

Oscar Gruber's No. 1 fee, C SW SE Sec. 8-67n-40w. Base Ft. Scott 750 ft.; T.D. 1,065 ft.; S.D. for csg.

Guthrie County

F. E. Hunt et al's No. 1 McConnell, C SE SE Sec. 11-78n-30w. S.D. 35 ft. for repairs.

NEBRASKA

Cass County

Golden Rod Oil Co. No. 1 Sparer, SE SE SE Sec. 8-11-13e. Drlg. 900 ft.

Scotts Bluff County

J. A. Fairy Pet. Corp. No. 1 McCully, C SE SE Sec. 35-23n-58w. Set 6-in. 1,407 ft.; S.S.O. 1,515 ft.; S.D. 2,030 ft.

Albert Wood No. 1 McHenry, SE NE NE Sec. 33-23n-57w. T.D. 1,900 ft.; S.D.

ARKANSAS

Clark County

Coker Oil Corp.'s No. 1 Gurdon Lbr. Co., 330 ft. NE cor. NW NE Sec. 3-10-21. Set 5⅛-in. csg. 244 ft.; reported S.O. 352 ft.; cg. 412 ft.

W. S. King's No. 1 H. Ross, 640 ft. S, 359 ft. W, NE cor. S½ SW Sec. 3-10-21. Drlg. rd.&gr. sh. 1,557 ft.

W. P. Wilson's No. 1 Hamilton & Mathews, C W½ NE NE Sec. 31-10s-20w. Run 10-in. csg. 41 ft.; T. Nac. 358 ft.; S.S.O.; reported S.O.&G. 437 ft.; drlg. sdy. sh. 1,278 ft.

Columbia County

Ark. Fuel Oil Co.'s No. 1 King, C SE SW Sec. 16-17-20. Drlg. rd.&gr. sh. 4,615 ft.

Atlantic Ref. Co.'s No. 1-B L. Spain, S½ NW SW Sec. 18-17-19. 9⅝-in. csg. 3,176 ft.

Lion Oil Ref. Co.'s No. 1 Warnock est., C NW NW Sec. 15-18-22. Drlg. 70 ft.

Normandie Oil Co.'s No. 2 Dees, C SE SE Sec. 24-17-20. Set whpstk. 5,300 ft.; O.T.D. 5,738 ft.; P.B. 4,500 ft.; drld. out and set whpstk. 4,636 ft.; drlg. 4,663 ft.

Southwood Oil Co.'s No. 1-C A. L. Poindexter, C N½ NE NE Sec. 23-17-20. Whpstkd. 4,758 ft.; drlg. 6,460 ft.

Standard Oil No. 1 J. A. Foster, Sec. 19-17s-19w. Set 6-in. csg. 7,453 ft.; set 370 ft. of 4½-in. at 7,594 ft.; set whpk. 4,340 ft.; drlg. sd&sh. 6,687 ft.

Standard Oil Co. of La.'s No. 1 Gunnels, 660 ft. SW cor. SE NW Sec. 19-17-19. T. L. 7,403 ft.; T. pors. 7,455 ft.; set 9⅝-in. csg. 7,490 ft.; T.D. 7,558 ft.; W.O.C.

Standard Oil Co. of La.'s No. 1-B Gunnels, 571 ft. W, 585 ft. S, NE cor. NW SW Sec. 19-17-19. Drlg. sh. 3,769 ft.

Standard Oil Co. of La.'s No. 1 Oda Jameson et al, 660 ft. N, 664 ft. W, SE cor. Sec. 14-17-19. Set 13⅜-in. csg. 244 ft.; W.O.C.

Standard Oil Co. of La.'s No. 1 D. H. Lewis, C NW NE Sec. 19-17-19. Drlg. sd.&sh. 7,109 ft.

Standard Oil Co. of La.'s No. 1 Petty Stave, C SE SE Sec. 4-17-21. R.U.

Standard Oil Co. of La.'s No. 1 R. S. Warnock, C NW NW Sec. 36-16-20. Spd. in.

Tide Water Seaboard's No. 1 Clark, C SE NE Sec. 16-18-19. Set 10¾-in. csg. 2,514 ft.; drlg. 4,619 ft.

G. H. Vaughn and Deep Rock Oil Corp.'s No. 1 J. Jones unit, C SW NE Sec. 21-17-20. Set whpstk. 3,640 ft.; drld. to 4,678 ft.; hole 4° off; abd. loc. and skd. rig to C SW NE and spd.; W.O. C. surf. csg.

Craighead County

Tennark, Inc., No. 1 R. M. Martin, SE cor. NE NE Sec. 35-14-3e. Drlg. sdy. L. 3,462 ft.; T. sdy. L. 3,458 ft.; drlg. hd. L. stks. sh. 3,745 ft.

Lafayette County

Standard Oil Co. of La.'s No. 2 H. B. Eddy et al, C SE SE Sec. 12-16-23. Rng. 9⅝-in. csg. 2,172 ft.

Lonoke County

W. L. Tedford No. 1 Anderson, Sec. 7 4n-9w. Set 6¼-in. csg. 1,025 ft.; reseating 6-in. csg. to S.O.W. 1,125 ft.; U.R. 6¼-in. csg. 1,175 ft.; reported S. O. 940 ft.; drlg. hd. bl. sd. 1,310 ft.

Miller County

W. C. Feazel's No. 1 Norton, 454 ft. N, 350 ft. W, SE cor. Sec. 18-20-27. Drlg. anhy. 5,684 ft.

Nevada County

Berry Asphalt Co.'s No. 1 Calloway-Howell, 175 ft. W, 220 ft. S, NE cor. NE SW Sec. 5-14s-20w. Drlg. 50 ft.

O. T. Clark's No. 1 T. M. Bemis, 330 ft. NW cor. NW NE Sec. 23-10s-22. M. I.M.

Ouachita County

A. B. Turner et al No. 1 Cook Est., C NW SW Sec. 27-15-18. W.O. 1,618 ft.

Pulaski County

Coker Oil Corp.'s No. 1 Huffman, 330 ft. NW cor. NW SW SW Sec. 29-4n-11w. 8⅝-in. csg. 206 ft.; S.D. 1,763 ft.

Sevier County

R. A. McArthur's No. 1 Bell est., 20 ft. SE cor. SE SW Sec. 29-9s-32w. Set 12½-in. csg. 100 ft.; S.D.; drlg. wtr. well.

Union County—Schuler

Lion Oil Ref. Co.'s No. 2 Callowav, 330 ft. SE cor. SE SE Sec. 13-18-18. Set 7-in. csg. 7,635 ft.; T.D. 7,645 ft.; W. O.C.

Lion Oil Ref. Co.'s No. 7-B Morgan, 330 ft. NW cor. W½ SE Sec. 18-18-17. Cg. 5,684 ft.

Marine Oil Co.'s No. 5 Justiss, 300 ft. N, 465 ft. W, SE cor., Lot 7, NW Sec. 18-18-17. Set 10¾-in. csg. 822 ft.; drlg. rd.&gr. sh. 5,037 ft.

Union County—Other

E. G. Bradham's No. 4-A H. C. McKinney, 306 ft. N, 660 ft. E, SW cor. SW SW Sec. 30-17-15. Hole 120° off; P.B. 2,150 ft.; hole 11° off; abd. and skd. 20 ft. N; set 10-in. csg. 100 ft.; T.D. 2,167 ft.; arng. run 7-in. csg. and drill in with C.T.

Crestrock Oil Co.'s No. 1 E. Riley, 330 ft. S, 250 ft. W, NE cor. NW SW Sec. 9-16-15. S.O. 2,370-80 ft. and 2,390-2,400 ft.; 6-in. csg. 2,415 ft.; T.D. 2,415 ft.; perf. 2,370-74 ft.; pmpd. est. 200 B.P.D.; small S.O.; pmpd. 300 B.F. in 8 hrs., 8% oil; W.O.

Delta Drlg. Co.'s No. 1 C. T. Grace, C SE SE Sec. 31-12-14. Set 10¾-in. csg. 815 ft.; cd. sd. S.O. 3,522-42 ft.; D.S.T. 15 min.; ⅝-in. cks.; W.P. 11 lb.; tstd. 2,700 ft. S.W.; drlg. 3,550 ft.

Lion Oil Ref. Co. No. 9-A Hays, Sec. 4-16-15. O.W.W.O.; O.T.D. 7,255 ft.; P.B 2,325 ft.; rpd. csg. 2,276-80 ft.; S.O.; pmpd. est. 700 B.P.D. S.W.; S.S.O.; arng. recmt. 2,325 ft.; W.O.C.

Oil Prod., Inc.'s No. 1 Moore, C SE SE Sec. 1-17s-14w. S.D. 2,362 ft.; boiler rep.; reported S.O. 2,250 ft.

Jo-Mo Oil Corp.'s No. 1 Union Sawmill Co., 330 ft. N and W, SE cor. NE NE Sec. 24-17-14. Set 10-in. 74 ft.; T. Nach. 2,310 ft.; S.D.; W.O. 3,270 ft.

ALABAMA

Barbour County

W. B. Hinton's No. 1 fee, Sec. 14-9n-26e. T.D. 5,112 ft.; D.S.T. 4,585-5,112 ft.; rec. 60 ft. drlg. mud; rmg.

Choctaw County

Joe Modisett et al's No. 1 McCorvey, SE cor., SW SW Sec. 20-9n-2w. S.D. 7,520 ft.

Houston County

Columbia Oil Co.'s No. 1 State Ld., SE cor. NE NE Sec. 8-2n-29e. S.D. 2,150 ft.; Selma clk.

Lawrence County

Mid-Southern Pet. Co.'s No. 1 W. R. Jackson, 150 ft. NL, 500 ft. EL, Sec. 30-7-6. S.D. 570 ft., hd. L.

Washington County

Texon Drlg. Co.'s No. 1 Stallworth Naval Stores, Sec. 25-5n-4w. Spd.; set 12-in. csg. 147 ft.; S.D. 2,706 ft.

MISSISSIPPI

Issaquena County

A. A. Chaney, Tr.'s No. 1 J. C. Mohanna, Sec. 13-18n-3e. Loc.

Kemper County

M. R. Crabb et al's No. 1 W. T. Caldwell, NW SE Sec. 25-9n-15w. 10¾-in. csg. 86 ft.; T.D. 1,200 ft.; wash. to bttm.

Lafayette County

Adam O. & G. Co. No. 1 Z. E. Lewellen, 990 ft. WL, 330 ft. NL, NE NW NW Sec. 9-10s-1w. S.D. 3,735 ft.

Lamar County

Ira H. Larr et al's No. 1 M. Simmon, Sec. 32-3n-14w. R.U.

Yazoo County

O'Brien Bros. et al's No. 1 Jennie Stevens, C SW NE Sec. 13-10n-3w. Spd.

Union Prod. Co.'s No. 1 S. E. Perry et al, C NW NW Sec. 24-10-3. T. Cretaceous 4,485 ft.; cg. 4,487 ft.

Union Prod. Co.'s No. 1 Stevens, C NW NW Sec. 13-10-3. T. Cretaceous 4,395 ft.; rec. 4½ ft. shaly L.&sd. with O.S. 4,407-27 ft.; cg. abd.

LOUISIANA

N. LOUISIANA WILDCATS

Bossier Parish

Gulf Ref. Co.'s No. 20 C. B. Hodges, 3,131 ft. N, 1,388 ft. W, SE cor. Sec. 24-16-12. Cg. Pett. L. 5,395 ft.

Premier Inv. Co.'s No. 7-B Kendrick, 150 ft. N, 1,980 ft. W, SE cor. Sec. 22-19-11. R.U.

J. B. Stovall's No. 3 Gayoso, 1,145 ft. N, 68 ft. E, SW cor. Sec. 14-19-11. Set 4-in. csg. 355 ft.; W.O.C.

Caddo Parish

R. E. Allison's No. 3 Ellerbe et al, 330 ft. N, 1,980 ft. E, SW cor. Sec. 27-18-14. Set 9⅝-in. csg. 1,200 ft.; W.O.C.

Ark. La. Gas Co.'s No. 1 Bell, 1,218 ft. N, 1,067 ft. E, SW cor. Sec. 6-17-16. Set 9⅝-in. csg. 3,246 ft.; drlg. 4,129 ft.

J. W. Bailey's No. 1 Winston, 592 ft. N, 150 ft. E, SW cor. NW Sec. 8-20-15. Set 10-in. csg. 110 ft.; 6-in. csg. 1,344 ft.; acdzd. with 3,000 gal.; tstg. 1,585 ft.

Burnham Drlg. Co.'s No. 1 Wilkinson, 1,650 ft. N, 990 ft. W, SE cor. Sec. 33-22-16. Loc.; (cor.)

Burton & Harlan's No. 1 Thompson, 495 ft. S, 261 ft. E, C Sec. 1-20-16. Drlg. 1,355 ft.

David Crawford et al's No. 1 Lloyd, 3,940 ft. N, 1,000 ft. E, SW cor. Sec. 29-17-13. T.D. 1,410 ft.; prep. run 9⅝-in. csg.; blew out in Nac. gas sd. at 900 ft. and caught fire; extinguished; S.D.

L. I. Davis' No. 1 Williams, C NW NW Sec. 14-15-15. R.U.; S.D.

Homer Ferguson's No. 2 Pala, Sec. 1-20-16. Drlg. 1,060 ft.

Ben F. French's No. 1 Greer, 220 ft. S, 450 ft. W, NE cor. Sec. 1-20-16. Set 10-in. csg. 102 ft.; W.O.C.

R. L. Hall's No. 2 Caddo Lv. Bd., 585 ft. S, 1,245 ft. E, C Sec. 26-21-16. Set 8-in. csg. 938 ft.; T.D. 942 ft.; W.O.S.R.

A. R. Hancock's No. 1 Standard Oil Co. fee, 330 ft. NW cor. SW Sec. 17-21-15. Set 7-in. csg. 1,527 ft.; T.D. 1,777 ft.; W.O.S.R.

V. A. Hardin's No. 1 Glassell-Means, 660 ft. S, 609 ft. E, NW cor. Sec. 9-23-15. Cg. 6,066 ft.

Jones Oil Co.'s No. 1 Pitts, 250 ft. S, 674 ft. W, NE cor. Sec. 24-20-16. Tstd. dry 1,679 ft., S.O.; acdzd. with 3,000 gal.; pmpg. S.W.

C. H. Lyons et al's No. 1 Rosenblath, 725 ft. N, 1,270 ft. E, C Sec. 35-18-14. 9-in. csg. 1,221 ft.; T.D. 1,320 ft.; W. O.C.

J. F. Mechen's No. 1 Crystal, 990 ft. S, 900 ft. W, NE cor. Sec. 14-21-16. Set 6⅝-in. csg. 1,697 ft.; W.O.C.

J. Ray Murray et al's No. 1 Standard Oil Co. fee, 330 ft. N, 200 ft. E, SW cor. Sec. 12-21-16. Set 7-in. csg. 1,500 ft.; acd. with 1,000 gal. at 1,720 ft.; S.O.; T.D. 2,312 ft.; rng. 4½-in. csg.

G. H. Neighbors' No. 1 Thrash, 1,168 ft. N, 370 ft. E, SW cor. SE¼ Sec. 36-21-16. Drlg. 450 ft.

Claude Neil's No. 1 Vaughn, 115 ft. S, 465 ft. W, NE cor. SW SE Sec. 1-20-16. Drlg. 101 ft.

J. S. Pate's No. 1 J. B. Files, 330 ft. N,

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W·H·CURTIN & CO. Inc.
HOUSTON U.S.A. TEXAS

332 ft. W, SE cor. Sec. 7-21-15. 6⅝-in. csg. 1,530 ft.; acdzd. with 4,000 gal.; W.O.S.R. 1,753 ft.

Seymour Oil Co. No. 1 Hughes et al, 330 ft. NE cor. NW Sec. 15-20-15. W.O. S.R.; set 6-in. csg. 2,190 ft.; T.D. 2,206 ft.

Stanolind O. & G. Co. No. 1, 131 Dillon hrs., C SE NE Sec. 14-21-15. Ran Schmb. 9,109 ft.; drlg. sh. 9,131 ft.

Joe G. Strahan's No. 2-A Hart, 1,300 ft. N, 990 ft. E, SW cor. Sec. 29-21-16 Drlg. sh. 500 ft.

Joe G. Strahan's No. 2 Stiles, 1,958 ft. N, 250 ft. E, SW cor. Sec. 29-21-16. Set 6-in. csg. 2,199 ft.; T.D. 2,400 ft.; W.O.C.

Temple Oil Co.'s No. 1 Bostwick, 990 ft. N, 330 ft. W, SE cor. SW Sec. 13-22-16. R.U.

Tippett Oil Corp.'s No. 2 Bell, 330 ft. NW cor. SW NW Sec. 34-22-16. Drlg. sh. 350 ft.

Travis & Red Iron Drlg. Co.'s No. 1 Chandler et al, 819 ft. S, 2,086 ft. E, NW cor. Sec. 5-23-15. R.U.

Waldron & Barnes' No. 2 Ark. Fuel Oil Co., 483 ft. N, 630 ft. E, SW cor. NW SE Sec. 1-20-16. Set 5½-in. csg. 1,325 ft.; drlg. sdy. sh. 1,444 ft.

Caldwell Parish

Critchett & Woods (formerly E. T. Oakes) No. 1 Kyles, NE cor. SW NE Sec. 18-11-3e. S.D. 4,145 ft.

Claiborne Parish

Lisbon Explin. Co. No. 1 Roberts Vaughn, 330 ft. N, 660 ft. E, SW cor. NW NE Sec. 36-21-5. O.W.D.D.; O.T.D. 5,313 ft.; recmtd. 7-in. csg. 5,343 ft.; T. Tr. Pk. 5,405 ft.; T. lower Marine form. 7,833 ft.; cg. bl. sh.&stks. sd. 8,302 ft.

Maritsky & Bibby's No. 4 McClung, Sec. 29-21-7. Tstd. small S.O.; W.O. 1,476 ft.

De Soto Parish

C. H. Tuttle No. 2-A Wemple, E NW cor. SW¼ Sec. 14-12n-11w. T. bkn. sd. 2,640 ft.; 6⅝-in. csg. 2,557 ft.; tstg. 2,698 ft.

La Salle Parish

Peterson Pet. Co.'s No. 1 Tinsley, C NE SW Sec. 36-9n-2e. Set 10-in. csg. 100 ft.; T. Wlx. 1,906 ft.; rand elec. sur.; W.O. 1,966 ft.

Smith Bros.' No. 1 Kenney, 660 ft. S 150 ft. W, C Sec. 7-10-2e. T. sd. 1,517 ft.; set 8¼-in. csg. 1,517 ft.; T.D. 1,527 ft.; W.O.C.

Morehouse Parish

Southern Carbon Co.'s No. 26 Tensas, Sec. 2-21-4e. 8-in. csg. 785 ft.

Union Prod. Co. No. 1-A Tensas-Delta. 1,894 ft. W, 1,584 ft. S, NE cor. SE Sec. 8-22-4. Set 20-in. csg. 125 ft.; 16-in. csg. 712 ft.; set 10¾-in. csg. 2,448 ft.; drlg. 7,588 ft.

Natchitoches Parish

Jack Lent et al's No. 1 Walker, C NE NE Sec. 9-10-10. 10-in. csg. 63 ft.; S.D. 1,570 ft.; W.O.

Popkins & DeSoto Bros.' No. 1 Peavy-Wilson Lbr. Co., 330 ft. NW cor. SE NW Sec. 36-7n-9w. O.W.W.O.; O.T.D. 500 ft.; S.D. 2,700 ft.

Sabine Parish

Ed Bailey's No. 1 Hale, 330 ft. NW cor. NE NW Sec. 6-7-12. Drlg. sh. 225 ft.

M. Lanza's No. 1 Phares, 330 ft. SE cor. NE SE Sec. 5-5-12. Set 10-in. csg. 171 ft.

W. E. Manners' No. 1 Stephens, C SW SE Sec. 17-9-11. R.U.

Oglesby & Baird's No. 1 Sabine Lbr. Co., SW cor. SW SE Sec. 5-7-13. T. clk. 2,140 ft.; rng., csg.; T.D. 2,140 ft.

Okla.-Texas Tr.'s No. 3 Frost Lbr. Co., NE cor. NE SW Sec. 22-9-13. S.I.; drld. out to 3,046 ft.; perf. csg. 1,892-99 ft. and flwd. est. 100 B.O. and 25 bbl. S.W. in 24 hrs.

K. R. Phillips' No. 1 Craig, 335 ft. S, 330 ft. E, NW cor. NW SE Sec. 22-9-13. D.D.; arng. test; T.D. 1,935 ft.

W. L. Posey No. 1 Rivers, C NW NW Sec. 26-8-13. 6-in. csg. 2,147 ft.; T.D. 2,150 ft.; T. clk. 2,145 ft.; drlg. clk. 2,375 ft.

W. M. Quick No. 1 Sabine, SE cor. NE SE Sec. 8-7-13. 6-in. csg. 2,061 ft.; T. D. 3,547 ft.; P.B. 2,350 ft.; tstg. small S.O.&wtr.

H. M. Sneed No. 1 Leone, SW cor. NW SE Sec. 8-7-13. T.D. 1,962 ft.; 6-in. csg. 2,061 ft.; W.O.S.R.; T.D. 2,116 ft.

S. E. Stack's No. 1 Gray, 330 ft. SW cor. Sec. 4-7-13. T. clk. 2,025 ft.; set 7-in. csg. 2,028 ft.; W.O. wtr.

J. E. Stack's No. 1 Weber, 330 ft. SE cor. SW NE Sec. 8-7-13. R.U.; S.D.

Sutton-Zwolle Oil Co.'s No. 3 Sabine, 1,650 ft. S, 660 ft. E, NW cor. NE Sec. 23-7-14. R.U.

Union Parish

W. E. Hope G. & O. Co.'s No. 5 Frost Lbr. Ind., Sec. 26-22-3. Set 6-in. csg. 2,108 ft.; W.O.C.

Memphis Nat. Gas Co.'s No. 1 Frost Lbr. Ind., Sec. 14-22-3e. Set 6-in. csg. 2,128 ft.; W.O.C.

Memphis Nat. Gas Co.'s No. 3 Lankford, 1,980 ft. S, 660 ft. E, NW cor. Sec. 7-22-4. Set 8-in. csg. 778 ft.; W.O.C.

H. L. Woods' No. 1 Frost Lbr. Ind., 1,980 ft. E, 660 ft. N, SW cor. Sec. 29-21-3. Set 12½-in. csg. 166 ft.; W.O.C.

H. L. Woods' No. 1 Union Power, 1,980 ft. E, 660 ft. S, NW cor. Sec. 29-21-3. R.U.

Webster Parish

Geo. B. Barham's No. 1 Bodcaw Lbr. Co., 627 ft. N, 710 ft. E, SW cor. SE Sec. 15-21-10. O.W.D.D.; O.T.D. 4,683 ft.; Hillwy. sd. 5,828-39 ft.; oil; set 5-in. csg. 5,790 ft.; T.D. 5,929 ft.; W.O.C.

Magnolia Pet. Co.'s No. 3 Cox, 672 ft. W, 737 ft. N, SE cor. SE NE Sec. 22-21-10. Drlg. sd. 550 ft.

Midstates Oil Corp.'s No. 1 W. L. Coyle, 100 ft. NW, C NE SE Sec. 20-21-10. Drlg. sh. 8,356 ft.

Oliphant Oil Co.'s No. 2 Banks, 410 ft. S, 660 ft. E, NW cor. Sec. 2-20-10. Drlg. sh.&L. 4,488 ft.

Stanolind O. & G. Co.'s No. 4 Pardee, 660 ft. SE cor. Sec. 25-21-10. T. Tr. Pk. 5,829 ft.; 9⅝-in. csg. 5,950 ft.; drlg. 5,829 ft.; 9⅝-in. csg. 5,950 ft.; 9⅝-in. csg. 5,863 ft.; drlg. sh.&sd. 6,510 ft.

Woodley Pet. Co.'s No. 2 Couch, 810 ft. S, 510 ft. W, NE cor. SW Sec. 35-21-10. 13⅜-in. csg. 683 ft.; fsg. 5,529 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co. No. 3 Brookshire. Sec. 66-12s-3e. T.D. 7,896 ft.; 6-in. csg. 7,896 ft.

Continental Oil Co. No. 1 David Meaux, Sec. 9-12s-3e. T.D. 11,359 ft.; T. gas sd. 11,318 ft.; D.S. stk.; fsg.

Continental Oil Co. No. 1 Franciol, Sec. 67-12s-3e. Drk.

Bancroft—Beauregard Parish

Republic Prod. Co.'s No. 9 Columbia Ld. & Tmbr. Co., Sec. 15-6s-13w. T.D. 7,330 ft.

Republic Prod. Co.'s No. 11 Columbia Ld. & Tmbr. Co., Sec. 16-16s-13w. T.D. 7,321 ft.; 5½-in. csg. 7,316 ft.

Republic Prod. Co. No. 9 Lutcher Moore, Sec. 15-16s-13w. T.D. 11,018 ft.; 5½-in. csg. 11,018 ft.; perf. csg. 10,375-85 ft.; tstd. S.W.; sqzd. perf.; P.B. to 8,420 ft.; tstg.

Bateman Lake—St. Mary Parish

Texas Co. No. 1 St. Mary Parish Sch. Bd., Sec. 16-16s-12e. Drlg. sh. 11,082 ft.

Texas Co. No. 2 State-Bateman Lake, Sec. 21-16s-12e. 7⅝-in. csg. 10,985 ft.; T.D. 11,609 ft.; perf. csg. 10,822-45 ft.; tstd. gas; sqzd.; perf. csg. 10,702-27 ft.; tstd. gas; reperf. csg. 10,475-95 ft.; tstd. gas-cut mud; perf. csg. 9,580-94 ft.; showed gas; reperf. csg. 9,675-85 ft. perf. csg. 8,675-85 ft.; I.P. 271 B.P.D.; 10/64-in. ck.

Baton Rouge—East Baton Rouge Parish

W. V. Bowles' No. 2 Richard Community, Sec. 45-7s-1e. Drlg. sh. 4,705 ft.

M. T. Grubb et al's No. 2 College Town Sec., Lot 18, Blk. 2. Drlg. sh. 5,739 ft.

Guaranty Oil Co. No. 2 Morgan, Sec. 65-7s-1w. T.D. 6,530 ft.; 5½-in. csg. 6,450 ft.; swbd. S.W.; S.D.

Wm. Helis' No. 3-B Duplantier, Sec. 68-7s-1w. Drlg. 140 ft.

Wm. Helis' No. 6-A Duplantier, Sec. 65-7s-1w. T.D. 6,460 ft.; T. sd. 6,455 ft. I.P. 292 B.P.D.; 11/64-in. ck.

Wm. Helis' No. 1 L.S.U., Sec. 67-7s-1w. Drlg. sh. 5,048 ft.

Wm. Helis' No. 4A L.S.U., Sec. 67-7s-1w. T.D. 6,489 ft.; 7-in. csg. 6,484 ft.

Wm. Helis' No. 3 Masteriste, Sec. 66-7s-1w. T.D. 6,475 ft.; 7-in. csg. 6,466 ft. I.P. 284 B.P.D.; 11/64-in. ck.

Wm. Helis' No. 2 Williams, Sec. 66-7s-1w. 6,479 ft.; 7-in. csg. 6,462 ft.; I.P. 277 B.P.D.; 11/64-in. ck.

T. G. Markley et al No. 3 Knox, Amis-Farnbacher, Sec. 66-7s-1w. Loc.

T. G. Markley et al's No. 7 Knox et al. Sec. 66-7s-1w. T.D. 6,484 ft.; 7-in. csg. 6,477 ft.

Marshland Oil Co.'s No. 1 J. B. McDonald, Sec. 45-7s-1e. Drlg.

Sugarfield Oil Co.'s No. 2 Irby Nichols, Sec. 45-7s-1e. Drlg. 910 ft.

Texas Canadian Oil Co.'s No. 2 Bogan-Davidson, Sec. 67-7s-1w. R.U.

Bay St. Elaine—Terrebonne Parish

Texas Co. No. 19 State-Bay St. Elaine. Sec. 18-22s-18e. T.D. 6,500 ft.; 9⅝-in. csg. 6,400 ft.; T.D. 7,028 ft.; 7-in. csg. 7,028 ft.; perf. csg. 6,440-6,500 ft. tbg. plugged up; pulling screen.

Bayou Choctaw—Iberville Parish

Standard Oil Co. (La.) No. 11 Wilbert. Sec. 53-9s-11e. T. salt 718 ft.; T.D. 4,833 ft.; 7-in. csg. 4,833 ft.

Bayou des Glaise—Iberville Parish

Humble O. & R. Co. No. 1-B Wilbert, Sec. 78-8s-8e. T.D. 3,025 ft.; 13⅜-in. csg. 3,000 ft.; T. salt 4,101 ft.; T.D. 4,182 ft.; S.D.

Humble O. & R. Co.'s No. 2-B Wilberts, Sec. 78-8s-8e. Loc.

Black Bayou—Cameron Parish

Earth Pet. Co. No. 2 R. A. Moore, Sec. 18-12s-12w. S.D. 8,332 ft.

Caillou Island—Terrebonne Parish

Texas Co.'s No. 59 State, Sec. 19-23s-20e. T.D. 5,418 ft.; abd.

Cameron Meadows—Cameron

Magnolia Pet. Co. No. 25 Cameron Meadows, Sec. 21-14s-13e. T.D. 6,955 ft.; 7-in. csg. 6,494 ft.

Hackberry—Cameron Parish

Gulf Oil Corp. No. 35-A Erwin, Sec. 13-12s-10w. Drk.

Superior Oil Co.'s No. 7 Benson Vincent, Sec. 30-12s-10w. R.U.

Texas Co. No. 27-B State, 623 ft. S, and 5,142 ft. E of SE cor. Sec. 12-12s-10e, in Twp. 12s-9w. T.D. 7,843 ft.; salt; T. salt, 7,839 ft.; P.B. 6,500 ft.; sdtkd.; drlg. sh. 6,923 ft.

Union Sulphur Co.'s No. 1 Simon Doiron, Sec. 37-12s-10w. Drlg. sdy. sh. 3,789 ft.

Horseshoe Bayou—St. Mary Parish

Texas Co.'s No. 3 State, Sec. 40-17s-9e. T.D. 10,017 ft.; fsg.

Jeanerette—St. Mary Parish

Herton Oil Co.'s No. 6 Roane, Sec. 38-13s-9e. Drlg. sh. 5,413 ft.

Jefferson Island—Iberia Parish

Texas Co.'s No. 3 Jefferson Salt Mining Co., Sec. 58-12s-5e. Drlg. sh. 6,656 ft.

Jennings—Acadia Parish

Carter-Perrin & Brian No. 1 Martel, Sec. 47-9s-2w. T.D. 1,916 ft.; 6-in. csg. 1,862 ft.; T.A.

Glassell-Glassell No. 8 Trusher, Sec. 42-9s-2w. Drlg. sdy. sh. 3,957 ft.

Shell Oil Co., Inc., No. 7 Conover, Sec. 40-9s-2w. 5½-in. csg. 7,166 ft.; T.D. 7,704 ft.; P.B. 7,666 ft.; cleaned hole to 6,888 ft.

Stanolind O. & G. Co. No. 115 Crowley Oil & Min. Co., Sec. 48-9s-2w. Drlg. sd.&L. 6,212 ft.

Lafitte—Jefferson Parish

Texas Co. No. 14 Lafitte, Sec. 20-17s-24e. Drlg. sd. 1,259 ft.

Texas Co.'s No. 11 Rigolet Cooperative Fur Co., Sec. 29-17s-24e. T.D. 10,325 ft.; perf. csg. 10,020-60 ft.; I.P. 1,189 B.P.D.; ⅝-in. ck.

Lake Hermitage—Plaquemines Parish

Gulf Oil Corp. No. 10 La Fourche Basin Lv. Dist., Sec. 2-18-25e. T.D. 7,242 ft.; abd.

Lake Long—La Fourche Parish

Fohs Oil Co. No. 10 State, 1,320 ft. N of No. 3, in Lake. T.D. 3,208 ft.; twisted off D.S.; sdtrkd. 2,940 ft.; T.D. 9,614 ft.; 6-in. csg. 9,614 ft.; perf. csg. 9,355-60 ft.; tstd. S.W. on D.S.T.; sqzd. perf.; W.O.C.; perf. csg. 9,352-55 ft.; flwd. 125 B.O., 340 bbl. S.W.; sqzd. perf.; perf. csg. 9,353-55 ft.; flwd. 480 B.F., 90% S.W.

Fohs Oil Co.'s No. 11 State, Twp. 17s-19e. Loc.

Lake Mongoulois—St. Martin Parish

Texas Co. No. 7 State, Sec. 10-10s-9e 7⅝-in. csg. 10,604 ft.; T.D. 10,775 ft.; perf. csg. 10,220-40 ft.; testd. gas; sqzd. perf.

Lake Pelto—Terrebonne Parish

Texas Co.'s No. 27 State, Sec. 7-23s-18e. 10¾-in. csg. 1,484 ft.; T.D. 5,233 ft.; salt; T. salt 4,718 ft.; sdtrkd.; T. salt 4,879 ft.; T.D. 5,551 ft.; P.B.; sdtrkd.; T.D. 5,285 ft.; 7-in. csg. 5,230 ft.

La Pice—Iberville Parish

Shell Oil Co., Inc.'s No. 1 Lebermuth & Israel. Drlg. 186 ft.

Shell Oil Co., Inc.'s No. 2 Natalbany Lbr. Co., Sec. 19-9s-2e. Drlg. sh. 7,770 ft.

Leesville—Plaquemines Parish

Texas Co.'s No. 7 L.L.&E., Sec. 27-21s-22e. T.D. 5,041 ft.; sdtrkd.; drlg. sh.& L. 4,752 ft.

Lirette—Terrebonne Parish

Humble O. & R. Co. No. 1 W. E. Mont, Sec. 32-19s-19e. Loc.; abd.

New Iberia—Iberia Parish

Wm. Helis' No. 14 Bernard, Sec. 54-12s-7e. T.D. 3,060 ft.; 7-in. csg. 3,042 ft.; I.P. 453 B.P.D.; ¼-in. ck.

Wm. Helis No. 9 Bolivar, Sec. 56-12s-7e. Salt 3,402 ft.; P.B.; sdtrkd.; T.D. 3,794 ft.; 7-in. csg. 3,781 ft.; I.P. 360 B.P.D.; ¼-in. ck.

Wm. Helis No. 7 J. E. Schwing, Sec. 56-12s-7e. Drlg. sdy. sh. 8,701 ft.

Texas Co. No. 2 Bryant, Sec. 25-12s-7e. R.U.

Texas Co.'s No. 11 J. P. Duhe, Sec. 26-12s-7e. T. salt 3,412 ft.; T.D. 3,415 ft.; P.B. 2,500 ft.; sdtrkd.; T.D. 3,777 ft.; 7-in. csg. 3,729 ft.

Texas Co.'s No. 3 Schwing, Sec. 71-12s-7e. Drlg. sh. 2,811 ft.

Paradis—St. Charles Parish

Texas Co. No. 2 L.L.&E. Paradis, Sec. 6-14s-20e. Drlg. sh. 9,910 ft.

Port Barre—St. Landry Parish

Gulf Oil Corp.'s No. 15 Wilson & Cochran. Sec. 4-6s-5e. T.D. 4,781 ft.; P.B.; sdtrkd. 4,100 ft.; cg. sd.&sh. 5,091 ft.

Pan American Prod. Co.'s No. 4 Cormier, Sec. 4-6s-5e. T.D. 5,425 ft.; perf. csg. 4,959-65 ft.; tstg.

Pan American Prod. Co. No. 8 Cormier. Sec. 4-6s-5e. R.U.

Y. D. Spill No. 1 Gaudet, Sec. 4-6s-5e. S.D. 4,700 ft.

Potash—Plaquemines Parish

Humble O. & R. Co. No. 40 Orleans Lv. Bd., Sec. 13-18s-15e. Drlg. sd. 4,643 ft.

Quarantine Bay—Plaquemines Parish

Gulf Oil Corp.'s No. 3-A Plaquemines Ld. Co., Sec. 7-19s-17e. Drlg. sh. 1,450 ft.

Gulf Oil Corp. No. 9 State QQ, Sec. 18-19s-17e. Loc.

Gulf Oil Corp.'s No. 15 State, Twp. 19s-17e. Drlg. sh. 1,603 ft.

Sorrento—Ascension Parish

Sorrento Syndicate No. 1 L. L. Bernard, Sec. 27-10s-4e. Drlg. sh.&L. 5,838 ft.

South Houma—Terrebonne Parish

Shell Oil Co., Inc.'s No. 4 Peters, Sec. 72-18s-18e. Drlg. sh. 2,535 ft.

South Roanoke—Jeff Davis Parish

Continental Oil Co. No. 2 Calcasieu Natl Bnk., Sec. 35-10s-4w. Drlg. sh. 10,053 ft.

Valentine—La Fourche Parish

Wm. Helis' No. 5 Valentine Sugars, Inc., Sec. 2-17s-20e. 10¾-in. csg. 1,632 ft.; drlg. sh. 7,462 ft.

Pan American Prod. Co.'s No. 21 Harang, Sec. 9-17s-20e. T.D. 5,427 ft.; 5½-in. csg. 5,413 ft.; I.P. 550 B.P.D.; ¼-in. ck.

Pan American Prod. Co.'s No. 3-A Community, Sec. 10-17s-20e. Drlg. sh. 5,580 ft.

Venice—Plaquemines Parish

Tide Water Asso. Oil Co.'s No. 6 Buras Lv. Bd., Sec. 27-21s-30e. Drlg. sh. 8,357 ft.

Ville Platte—Evangeline Parish

Continental Oil Co. No. 2 Corell, Sec. 36-3s-2e. T.D. 10,360 ft.; 6-in. csg. 10,360 ft.; perf. csg. 8,980-90 ft.; tstd. mud and S.W.

Continental Oil Co.'s No. 5 Orise Deville, Sec. 3-4s-2e. T.D. 9,066 ft.; perf. csg. 8,987-97 ft.; I.P. 293 B.P.D.; ¼-in. ck.

Continental Oil Co.'s No. 6 Ludeau Haas, Sec. 45-3s-2e. Drlg. sh. 7,786 ft.

Continental Oil Co.'s No. 5 Opelousas, St. Landry, Sec. 44-3s-2e. Drlg. sh. 7,903 ft.

Continental Oil Co.'s No. 3 Vidrine, Sec. 34-3s-2e. T.D. 8,971 ft.; 6-in. csg. 8,971 ft.

West Gueydan—Vermilion Parish

Magnolia Pet. Co.'s No. 2 A. Cormier, Sec. 5-12s-2w. Drlg. sh. 7,100 ft.

West Lake Verret—St. Mary Parish

Shell Oil Co., Inc., No. 1 Michel, Sec. 1-14s-12e. Cg. sh. 11,124 ft.

White Castle—Iberville Parish

Shell Oil Co., Inc.'s No. 1 Baist. Drlg. sh. 4,636 ft.

Woodlawn—Jeff Davis Parish

Union Sulphur Co. No. 1 Raymond Hebert, Sec. 6-9s-5w. T.D. 9,575 ft.; 7-in. csg. 9,575 ft.

Union Sulphur Co.'s No. 1 E. A. Norton, Sec. 12-9s-5w. R.U.

Union Sulphur Co. No. 3 Mrs. O'Miller, Sec. 7-9s-5w. Drlg. sdy. sh. 3,610 ft.

Chacahoula—La Fourche Parish

Sun Oil Co. No. 1 Cypress, Sec. 75-15s-15e. 13⅜-in. csg. 1,842 ft.; T. salt 6,072 ft.; T.D. 6,088 ft.; P.B. 2,100 ft.; sdtrkd.; T.D. 6,553 ft.; fsg.

Sun Oil Co.'s No. 2 Dibert Stark & Cypress Co., Sec. 70-15s-15e. T.D. 7,312 ft.; T. sd. 7,295 ft.; I.P. 453 B.P.D.; 13/64-in. ck.

Sun Oil Co. No. 2 Dodge Sunberry, Sec. 65-15s-15e. S.D. 4,259 ft.; T.A.

Chalkley Field—Cameron Parish

Humble O. & R. Co.'s No. 5 K. B. Hanzen, Sec. 9-12s-6w. Drk.

Humble O. & R. Co. No. 4 Sweet Lake Ld. & O. Co., Sec. 7-12s-6w. T.D. 8,448 ft.; P.B. 7,508 ft.; sdtrkd.; T.D. 8,462 ft.; fsg.

Shell Oil Co., Inc., No. 3 Hanzen, Sec. 21-12s-6w. 10¾-in. csg. 2,752 ft.; cg. oil sd. 8,818 ft.; T.S. 8,815 ft.; T.D. 9,300 ft.; 5-in. csg. 9,299 ft.; P.B. 8,925 ft.; perf. csg. 8,883-8,915 ft.; P.B. 8,880 ft.; I.P. 182 B.P.D.; 8/64-in. ck.

Charenton—St. Mary Parish

Commerce Oil Co.'s No. 3 Parro, Sec. 31-13s-10e. T.D. 6,695 ft.; perf. csg. 6,457-62 ft. and 6,478-83 ft.; made sqze. job; perf. csg. 6,462-67 ft.; I.P. 360 B.P.D.; ¼-in. ck.

H. J. DeArman et al's No. 2 Alleman, Sec. 21-13s-9e. T.D. 1,126 ft.; I.P. 16 B.P.D.; pmpg.

H. J. DeArman's No. 3 Alleman, Sec. 21-13s-9e. T.D. 1,127 ft.; I.P. 202 B.P.D.; pmpg.

Fifteen Oil Co. No. 2 State, Sec. 31-13s-10e. T.D. 7,043 ft.; 7-in. csg. 7,200 ft.; perf. csg. 5,889-95 ft.; I.P. 174 B.P.D.; 15/64-in. ck.

Knisley Oil, Inc.'s No. 6 Le Blanc, Sec. 21-13s-9e. T.D. 1,798 ft.; 7-in. csg. 1,776 ft.; I.P. 200 B.P.D.; pmpg.

Pan American Prod. Co.'s No. 17 Laws Realty Co., Sec. 31-13s-10e. Drk.

Pan American Prod. Co.'s No. 6 South Coast Corp., Sec. 31-13s-10e. Drk.

Cheneyville—Rapides Parish

Amerada Pet. Corp.'s No. 6 Well, Sec. 54-1s-2e. Drlg. sh. 5,316 ft.

Gulf Oil Corp.'s 1-A C. J. Pope, Sec. 56-1s-2e. T.D. 5,745 ft.; 5½-in. csg. 5,745 ft.

S. W. Richardson's No. 3 Well, Sec. 54-1s-2e. T.D. 5,817 ft.; ran 5½-in. csg.; perf. csg. 5,694-5,714 ft.; I.P. 340 B.P.D.; ¼-in. ck.

Convent—St. James Parish

Continental Oil Co.'s No. 2 Realty. P.B. T.D. 8,045 ft.; P.B. 6,342 ft.; tstg.; flwg. gas and dist.

Creole—Cameron Parish

Superior Oil Co.'s No. 8 State, Twp. 15s-8w. T.D. 7,151 ft.; 5½-in. csg. 6,807 ft.; perf. csg. 6,750-52 ft.

Darrow—Ascension Parish

Humble O. & R. Co.'s No. 25 Community, Sec. 31-10s-2e. Loc.

Humble O. & R. Co.'s No. 16 Gumbel, Sec. 36-10s-2e. S.O. 8,205-55 ft.; T.D. 8,445 ft.; S.D.; repairs.
Kiva Oil Co. No. 1 Duplessis, Sec. 69-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co. No. 23 State, Sec. 5-22s-16e. T.D. 7,429 ft.; P.B.; sdtrkd.; T.D. 6,-105 ft.; P.B.; sdtrkd.; drlg. sh. 6,074 ft.

Eola—Avoyelles Parish

Amerada Pet. Corp.'s No. 2 Glaze, Sec. 6-2s-3e. T.D. 8,559 ft.; 5½-in. csg. 8,-558 ft.; perf. csg. 8,425-8,536 ft.; I.P. 465 B.P.D.; ¼-in. ck.
Amerada Pet. Corp.'s No. 3 Glaze, Sec. 6-2s-3e. Drlg. sh. 3,060 ft.
Amerada Pet. Corp.'s No. 3 Irion, Sec. 6-2s-3e. R.U.
Amerada Pet. Corp.'s No. 5 C. B. Marchive, Sec. 6-2s-3e. Drlg. sh. 8,410 ft.
Amerada Pet. Corp.'s No. 6 Marchive, Sec. 6-2s-3e. Drlg. sh. 7,412 ft.
Amerada Pet. Corp.'s No. 1 White et al, Sec. 7-2s-3e. R.U.
Gulf Expln. Co. No. 5 Samuel Haas Est., Sec. 8-2s-3e. T.D. 8,584 ft.; 5½-in. csg. 8,584 ft.; perf. csg. 8,565-70 ft.; flwd. oil; went dead; S.D.
Geo. Lilly et al No. 1 Dent, Sec. 1-2s-2e. Drlg. sh. 8,316 ft.
Sid Richardson No. 3 State-Bayou Bouef, Sec. 6-2s-3e. Drlg. sh. 8,412 ft.
S. W. Richardson's No. 1-A Haas, Sec. 11-2s-2e. Loc.
S. W. Richardson's No. 6 Haas Inv. Co., Sec. 7-2s-3e. T.D. 8,470 ft.; rmg.

Fausse Point—Iberia Parish

Texas Co.'s No. 6 State, Twp. 11s-8e. 13⅜-in. csg. 1,407 ft.

Garden Island—Plaquemines Parish

Texas Co.'s No. 37 State, Garden Island, Sec. 38-23s-33e. Drlg. sdy. sh. 4,-109 ft.

Golden Meadows—La Fourche Parish

Berkshire Oil Co.'s No. 4 Nichol, Sec. 9-19s-22e. T.D. 5,650 ft.; run csg.
Brown & Wood's No. 1 J. Pitre, Sec. 9-19s-22e. T.D. 2,730 ft.; 5½-in. csg. 2,-726 ft.; perf. csg. 2,646-55 ft.; I.P. 144 B.P.D.; ¼-in. ck.
Taylor Fithian's No. 1 Mrs. Jacking Lambas, Sec. 2-19s-22e. Abd.
Taylor Fithian's No. 1 Edw. J. Parra, Sec. 12-19s-22e. 7-in. csg. 5,507 ft.; perf. csg. 5,168-82 ft.; I.P. 230 B.P.D.; ¼-in. ck.
Golden Meadows Oil Co.'s No. 1 Collins Unit, Sec. 12-19s-22e. T.D. 5,630 ft.; 5½-in. csg. 5,517 ft.; perf. csg. 5,440-53 ft.; I.P. 220 B.P.D.; ¼-in. ck.
Wm. Helis' No. 2 Gaspard & Regan, Sec. 9-19s-22e. T.D. 900 ft.; P.B. 600 ft.; to sdtrk.
Wm. Helis' No. 1 Gaspard & Rizau, Sec. 9-19s-22e. T.D. 7,925 ft.; 7-in. csg. 7,-930 ft.; I.P. 413 B.P.D.; ¼-in. ck.
M. H. Marr and R. A. Bristol No. 1 Church property, Sec. 2-19s-22e. T.D. 7,724 ft.; sdtrkd.; T.D. 9,007 ft.; P.B. and sdtrkd.; T.D. 2,652 ft.; T. sd. 2,647 ft.; 7-in. csg. 2,647 ft.; tstd. S.W. and oil; P.B. 2,000 ft.; sdtrkd.; T.D. 2,666 ft.; T.S. 2,648 ft.; flwd. oil and S.W.; perf. csg. 2,647-64 ft.; flwd. gas and S.W.; went dead; S.D.
M. H. Marr & G. H. Vaughn No. 1 Adair Terrebonne, Sec. 9-19s-22e. T.D. 9,011 ft.; 7-in. csg. 8,950 ft.; perf. csg. 7,-895-7,935 ft.
Martex Oil Co.'s No. 1 Rebstock, Sec. 2-19s-22e. Loc.
St. Mary Oil Co.'s No. 1 Choust, Sec. 12-19s-22e. Drlg. sh. 1,542 ft.
St. Mary Oil Co.'s No. 2 Choust, Sec. 12-19s-22e. T.D. 5,282 ft.; P.B. 5,208 ft.; perf. csg. 5,178-94 ft.; would not flw.
Texas Co.'s No. 2 Falgout Holding Co., Sec. 9-19s-22e. Drlg. sdy. sh. 7,812 ft.
Texas Co.'s No. 3 Falgout Holding Co., Sec. 9-19s-22e. T.D. 2,670 ft.; 7-in. csg. 2,645 ft.
Texas Co.'s No. 5 L.L.&E., Golden Meadows, Sec. 78-19s-21e. Drlg. sh. 7,280 ft.
Texas Co. No. 3 State-Catfish Lake, Sec. 76-19s-21e. T.D. 3,509 ft.; 7-in. csg. 2,-805 ft.; perf. csg. 2,740-62 ft.; W.O. S.R.
Texas Co. No. 1 Theriot, Sec. 12-19s-21e. T.D. 10,100 ft.; 7-in. csg. on bttm.

Grand Bay—Plaquemines Parish

Gulf Oil Corp.'s No. 5-A Grand Prairie, Sec. 31-19s-19e. Drlg. sdy. sh. 5,050 ft.
Gulf Oil Corp. No. 6-A Grand Prairie Lv. Dist., Sec. 17-20s-10e. T.D. 9,380 ft.; fsg.
Gulf Oil Corp.'s No. 7-A Grand Prairie Lv. Dist., Sec. 5-20s-19e. Loc.
Gulf Oil Corp.'s No. 8-A Grand Prairie Dist., Sec. 5-20s-19e. Loc.
Gulf Oil Corp.'s No. 4 State, Sec. 20-19s-19e. Loc.
Texas Co. No. 1 State-Lookout Pass, Sec. 48-20s-18e. Loc.

Grand Lake—Cameron Parish

Amerada Pet. Corp. No. 1 Mallard Bay State, Sec. 12-13s-4w. T.D. 9,661 ft.; 5½-in. csg. 8,579 ft.; gas sd. 8,300 ft.; O.S. 8,385-8,415 ft.; run csg.
Superior Oil Co.'s No. 3 State. Drlg. sd. &sh. 6,919 ft.

S. LOUISIANA WILDCATS

Acadia Parish

Mareaux Oil Corp. No. 2 J. E. Settig, Sec. 17-7s-1w. T.D. 1,324 ft.; abd.
Providence Oil Co.'s No. 1 Jos. John est., Sec. 37-10s-1e. Drlg. sh. 6,836 ft.

Iberia Parish

Iberia Parish Drillers, Inc., No. 1 Paul Stag, Sec. 4-7s-1w. M.I. rig.

Beauregard Parish

Atlantic Ref. Co. No. 1 Lutcher Moore, Sec. 22-3s-11w. Loc.
Atlantic Ref. Co. No. 1 Rice Ld. & Lbr. Co., Sec. 22-3s-11w. Loc.
California Co.'s No. 2 Long Bell Lbr. Co., Sec. 12-5s-10w. Drlg. sh. 145 ft.
Republic Prod. Co.'s No. 9 Lutcher Moore Lbr. Co., Sec. 1-7s-12w. Drk.

Calcasieu Parish

C. L. Arnette's No. 1 Arthur Welch, Sec. 19-10s-12w. 10¾-in. csg. 130 ft.; T.D. 395 ft.; S.D.
Gulf Oil Corp.'s No. 1 Amanda Brannon, Sec. 16-11s-10w. Drlg. sd. 6,002 ft.
Humble O. & R. Co. No. 2 Edgewood, Sec. 32-7s-10w. T.D. 9,450 ft.; abd.
La.-Gulf Coast Drlg. Co. No. 1 Langdon, Sec. 13-10s-13w. S.D. 1,890 ft.; abd.

Jefferson Parish

California Co. No. 1 Adam Rutley, Sec. 2-16s-23e. 20-in. csg. 163 ft.; 13⅜-in. csg. 1,980 ft.; 9⅝-in. csg. 8,496 ft.; T.D. 11,818 ft.; fsg.
Continental Oil Co. No. 1 Bernstein, Sec. 2-16s-23e. Drlg. sd. 8,040 ft.

Jeff Davis Parish

Housh & Thompson's No. 1 Lacassine, Sec. 29-11s-5w. R.U.

Lafayette Parish

Stanolind O. & G. Co.'s No. 1 Lacaze Billeaud et al, Sec. 35-10s-5e. Drlg. sdy. sh. 1,550 ft.

La Fourche Parish

Gulf Oil Corp. No. 2 Grandison, Sec. 21-20-23e. 13⅜-in. csg. 2,090 ft.; T.D. 9,-620 ft.; fsg.
Tide Water Asso. Oil Co. No. 1 Delta Farms, Inc., Sec. 6-17s-23e. Drlg. sh. 5,731 ft.

Livingston Parish

Humble O. & R. Co.'s No. 1 Great Southern Lbr. Co., Sec. 27-7s-5e. Drlg. sdy. sh. 8,030 ft.

Orleans Parish

W. T. Burton No. 1 L.&N.R.R., Sec. 18-11s-15e. T.D. 10,394 ft.; 5½-in. csg. 10,-274 ft.; S.D.

Plaquemines Parish

Gulf Oil Corp. No. 8 State P.P., Sec. 18-23s-31e. 13⅜-in. csg. 1,949 ft.; 9⅝-in. csg. 8,305 ft.; T.D. 10,074 ft.; abd.
Texas Co. No. 1 State-Bastian Bay, Sec. 43-20s-28e. 10¾-in. csg. 1,924 ft.; T.D. 10,176 ft.; abd.

St. Bernard Parish

Gulf Ref. Co. No. 4-State-R.R. (Lake Borgne), Twp. 12s-15e. 9⅝-in. csg. 8,-161 ft.; T.D. 10,632 ft.; P.B. 9,700 ft.; rmd. to 9,658 ft.; lost core bbl.; P.B. sdtrkd. 8,912 ft.; T.D. 10,528 ft.; 7-in. csg. 10,494 ft.; fsg.

St. John the Baptist Parish

Pan American Prod. Co. No. 1 Mill, Sec. 12-11s-7e (LaPlace prospect). 10¾-in. csg. 2,837 ft.; T.D. 8,896 ft.; D.S.T. 8,-870-96 ft.; tstd. 600 lb. W.P.; rec. 10 gal. dist.; csg. 8,912 ft.

St. Martin Parish

Continental Oil Co.'s No. 1 Leveret, St. John Plantation, Sec. 42-10s-7e. O.W.D.D. 9⅝-in. csg. 2,051 ft.; T.D. 10,090 ft.; abd.
Wm. Helis' No. 1, Levert, St. John Plantation, Sec. 33-9s-7e. T.D. 5,639 ft.; abd.
Wm. Helis' No. 1 Rycade Oil Co., Sec. 33-9s-7e. Drlg. sdy. sh. 3,902 ft.
Shell Oil Co., Inc., No. 1 Iberville Ld. Co., Sec. 86-8s-7e. Cg. sh. 8,755 ft.

St. Mary Parish

Perry S. Cooney No. 1 A. W. Allain, Sec. 46-13s-9e. S.D. 2,600 ft.

Terrebonne Parish

Continental Oil Co. et al's No. 1 Peters, Sec. 32-19s-15e. 13⅜-in. csg. 1,987 ft.; drlg. sh. 2,670 ft.
Shell Oil Co., Inc., No. 1-A Peters, Sec. 47-19s-19e. Cg. 11,175 ft.
Texas Co. No. 3 State-Coon Point, Twp. 23s-14e. 10¾-in. csg. 1,860 ft.; drlg. sh. 8,273 ft.

Vermilion Parish

La. Ld. & Explo. Co.'s No. 3 La. Fur Co., Sec. 9-15s-1e. R.U.

Vernon Parish

Pan American Prod. Co.'s No. 1 Anderson-Post Lbr. Co., Sec. 27-2n-11w. 9-in csg. 985 ft.; T. Wlx. reported at 4,550 ft.; drlg. sdy. sh. 6,106 ft.

TEXAS

Week Ending October 14

GULF COAST FIELDS

Anchor—Brazoria County

Humble O. & R. Co.'s No. 1 M. W. Mettler, J. de Jesus Valderas Sur. 13⅜-in. csg. 944 ft.
Glenn McCarthy's No. 1 Ida M. Salmon and John Muma, Geo. Robinson Sur. Drlg. sh. 907 ft.

Old Ocean—Brazoria County

Harrison & Abercrombie No. 6 Armstrong-fee, Polly-Chance Sur. Drlg. sd. &sh. 10,086 ft.
Harrison-Abercrombie's No. 7 Armstrong, Polly & Chance Sur. Drlg. sd. &L. 4,936 ft.
Harrison & Abercrombie's No. 1 Berthelsen, C. Breen Sur. Drlg. sh. 7,036 ft.
Mid-Continent Pet. Corp. No. 2 Chenault, C. Breen Sur. T.D. 10,400 ft.; tstg.
Sun Oil Co. No. 2 Borsodi, C. Breen Sur. 9⅝-in. csg. 7,005 ft.; T.D. 10,291 ft.; 7-in. csg. on bttm.
Sun Oil Co.'s No. 3 Campbell, C. Breen Sur. 13⅜-in. csg. 1,506 ft.

Cedar Point—Chambers County

Standard Oil Co. of Texas' No. 24-118 State. Drlg. sh. 5,212 ft.

Seabreeze—Chambers County

Sun Oil Co. No. 2 Hoffman, T.&N.O. Sur. No. 131. T.D. 8,400 ft.; W.O.C.

South Cotton Lake—Chambers County

Salt Dome Oil Co.'s No. 3-A Lawrence, S. Barrow Sur. T.D. 6,530 ft.; 5½-in. csg. 6,512 ft.; perf. csg. 6,518-21 ft.; tstg.

Turtle Bay—Chambers County

Stanolind O. & G. Co.'s No. 2 State, Tr. 39. Loc.; dredge canal.

Garwood—Colorado County

Davis & Co., Inc., No. 1 J. R. McLane, I.&G.N. Sur. 41. T.D. 8,834 ft.; run 9⅝-in. csg.

Big Creek—Fort Bend County

Merrimac Oil Corp. No. 1 George, B. Wickson Sur. (SW flank). Spd. and S.D.

Thompson—Fort Bend County

John Blaffer's No. 2 Davis, Robt. Peebles Sur. T.D. 5,400 ft.; comp.; no ga.
J. H. Blaffer's No. 3 Davis, Robert Peebles Sur. Drlg. sh. 4,426 ft.

League City—Galveston County

Phillips Pet. Co. No. 1 Dr. O. Patton (1 mi. E of production). Perf. csg. 9,177-97 ft.; flwd. S.W.; sqzd. perf.; S.D.
Phillips Pet. Co.'s No. 3 Stewart Title Guaranty Co., S. F. Austin Sur. R.U.
Phillips Pet. Co.'s No. 4 Stewart Title Guaranty Co., S. F. Austin Sur. 10¾-in. csg. 3,520 ft.
Phillips Pet. Co. No. 1 Wimhurst (NW extension). T.D. 10,962 ft.; well tried to blow out; D.S. stk.

Aldine—Harris County

Earl C. Hankamer's No. 1 O. P. Hairgrove, S. L. Noble Sur. Drlg. sh. 1,-810 ft.

Bammel—Harris County

H. M. Harrell's No. 1 Graves, C. Walters Sur. Spd.

Clear Lake—Harris County

Humble O. & R. Co.'s No. 19-C Humble-West, Wm. Dobie Sur. Drlg. sh. 2,-630 ft.
Humble O. & R. Co.'s No. 20-C Humble-West, Wm. Dobie Sur. T.D. 5,904 ft.; 5½-in. csg. 5,896 ft.

Friendswood—Harris County

Humble O. & R. Co.'s No. 31 Beamer, T. Choate Sur. Drlg. sh. 4,212 ft.
Humble O. & R. Co.'s No. 5-B Godwin, W. K. Smith Sur. Drlg. sh. 5,860 ft.
Humble O. & R. Co.'s No. 3 Keller, T. Choate Sur. Drlg. sh. 3,926 ft.

Mykawa—Harris County

McDannald Oil Co.'s No. 1 Schmeltz, R. Boatright Sur. Abd.

Texana—Jackson County

Moore-Ahern's No. 1 Clement, Stephen F. Austin Sur. Drlg. 5,000 ft.

Fannett—Jefferson County

Gulf Oil Corp.'s No. 12 Burrell, W. H. Smith Sur. T.D. 3,524 ft., sd. S.O.&G.

La Belle—Jefferson County

Sun Oil Co. No. 5 Broussard-Hebert, T. &N.O. Sur. No. 207. T.D. 8,710 ft.; perf. csg. 8,685-90 ft.; flwd. S.W.; made sqze. job; perf. csg. 8,667-71 ft.; tstd. S.W.; made sqze. job; S.D.

Lovells Lake—Jefferson County

Humble O. & R. Co.'s No. 10 Broussard, M. Grange Sur. T.D. 6,900 ft.; well tried to blow out.
Humble O. & R. Co.'s No. 6 Jefferson Ld. Co., C. Hillebrandt Sur. Drlg. L. 6,920 ft.
Humble O. & R. Co.'s No. 3-B Steinhagen, A. O. Donnell Sur. Loc.
Stanolind O. & G. Co.'s No. 2-A Steinhagen, A. O. Donnell Sur. Drlg. sh. 1,230 ft.

South China—Jefferson County

Hebert-Smith's No. 1 Broussard, Sarah Miles Sur. Drlg. sh. 4,410 ft.

Esperson—Liberty County

General Crude Oil Co.'s No. 8-B Esperson, A. McNeil Sur. Cd. oil sd. 7,680-7,768 ft.; cg. sh. 7,822 ft.

Hull—Liberty County

Gulf Oil Corp. No. 115 Phoenix Dev. Co., J. Devore Lge. (SE flank deep test). T.D. 6,595 ft.; 9⅝-in. csg. 5,904 ft.

Martha—Liberty County

Stanolind O. & G. Co.'s No. 1 Frank Charzan, I.&G.N. Sur. 7. Drlg. sh. 7,-130 ft.
Stanolind O. & G. Co.'s No. 1 R. G. Palmer, I.&G.N. Sur. 7. M.I.M.

Ace—Polk County

Shell Oil Co., Inc.'s No. 1 Kirby-West Lbr. Co., G. S. Thomas Sur. T.D. 7,-909 ft., oil sd.

Segno—Polk County

J. K. Dorrance's No. 5-A Wing, I.&G.N. Sur. R.U.
Gulf Oil Corp. No. 4 Quinn, A. Morales Sur. R.U.
Gulf Oil Corp.'s No. 22 Wing, I.&G.N. Sur. 15. T.D. 8,080 ft.; tstg.
Gulf Oil Corp.'s No. 23 Wing, P. Garcia Sur. Drlg. sh. 5,862 ft.
Humble O. & R. Co.'s No. 17-BX Kirby Lbr. Co., P. Garcia Sur. Drlg. sh. 3,-930 ft.

Spurger—Tyler County

Republic Prod. Co.'s No. 25 fee, N. Hurd Lge. T.D. 7,705 ft.; 5½-in. csg. 7,703 ft.
Republic Prod. Co.'s No. 26 fee, N. Hurd Sur. Drlg. sh. 2,824 ft.
Republic Prod. Co.'s No. 27 fee, N. Hurd Sur. Loc.

GULF COAST WILDCATS

Brazoria County

Fabriguze et al No. 1 Freeport Sulphur, Stephen F. Austin Sur. (Byran Mound). M.I.M.
Hamman Explth. Co. No. 1-B Darrington, State Prison Farm, F. Bingham Sur. Rig.
D. M. Hill's No. 1 Max Bader, Wm. Smeathers Lge. Loc.
Humble O. & R. Co.'s No. 1 A. M. Smith, W. D. C. Hall Sur. Drk.
Glenn McCarthy's No. 1 J. C. Carr, J. D. 996-10,004 ft.; T.D. 10,548 ft.; 7-in. csg. 10,538 ft.; perf. csg. 10,460-67 ft.; I.P. 267 B.P.D.; ¾-in. ck.; T.P. 2,100 lb.
Glenn McCarthy No. 1 Houston Farm Dev., James F. Perry and E. Austin Sur. 7. T.D. 10,350 ft. (cor.): flwg. 32 bbl. dist. per day; ¼-in. ck.; killed; prep. to recomp.
Glenn McCarthy's No. 2 Houston Farm Dev. Co., J. Perry & E. Austin Sur. 7. 10¾-in. csg. 3,492 ft.
Titanic Oil Co.'s No. 1 Allen, J. G. and G. W. McNeel Lge. (Allen dome). Spd.

Chambers County

Geo. Anderson No. 1 Julia Casey, W. D. Smith Sur. Loc.
J. R. Turnbull et al No. 1 W. C. Shepherd, R. A. Porter Sur. T.D. 6,466 ft.; 7-in. csg. 6,429 ft.; flwd. oil, gas, and wash wtr.; sanded up; sdtrkd. 6,463 ft.; T.D. 6,700 ft.; P.B.; perf. 6,457-65 ft.; S.D.

Colorado County

Cockburn Oil Corp. No. 1 R. W. Ferris, H. Chrisman Sur. Loc.

Fort Bend County

H. C. Cockburn No. 1 Dzierzanowski, Emma Meyer Sur. 8. 10¾-in. csg. 1,-058 ft.; T.D. 7,743 ft.; flwd. 85 B.F., 97% oil, 3% S.W.; ¼-in. ck.
Magnolia Pet. Co.'s No. 1 G. H. Huntington, Henry Scott Sur. Drlg. 80 ft.

Galveston County

Sun Oil Co.'s No. 1-176 State. Drlg. sh. 4,138 ft.

Grimes County

Roan, Coker & Kile's No. 1 W. W. Greer, Patrick B. O'Connor Sur. 10¾-in. csg. 41 ft.

Harris County

L. R. Wilhite et al No. 1 Houston-Harris Co. Ship Channel, Nav. dist., Ezekiel Thomas Sur. 13-in. csg. 388 ft.; S.D. 2,600 ft.

Jackson County

Skelly Oil Co.'s No. 1 Kunover, Schwind & Mahers subd., Blk. 4 (Francitas field). T.D. 8,004 ft.; D.S.T. 7,949-55 ft.; rec. oil and S.W.

Jefferson County

I. E. Harwell No. 1 State, Gulf of Mexico. T.D. 5,840 ft.; D.S. stk.; pulled in two; S.D.

Matagorda County

Gulf Stream Oil Co.'s No. 1 G. W. Ziprian, Luke Lessassier Sur. Drk.

Wharton County

Sam G. Harris et al's No. 1 C. T. Kountz, A.T.R.R. Sur., Sec. 51. Drk.
Dr. T. M. Neal No. 1 fee, Elisha Flack Sur. Loc.
Sun Oil Co.'s No. 1 Winnie M. Pool, G. H.&R.R. Sur. Drlg. sh. 4,286 ft.

S. W. TEXAS WILDCATS

Aransas County

Continental Oil Co.'s No. 1 St. Charles Co., R. D. Blassman Sur. 18¾-in. csg. 290 ft.; drlg. sh. 6,346 ft.

Bastrop County

C. R. Franklin's No. 1 Oscar McDonald, Martha Barker Sur. Drk.
Marts & Beaven's No. 1 J. E. Ferguson, Jas. Doyle Sur. R.U.

Bee County

J. R. Dougherty's No. 6 Hicks, J. M. Uranga gr. R.U.
Mills Bennett Prod. Co.-Anderson-Prichard Oil Corp.'s No. 1 D. E. Robinson, J. M. Uranga Sur. R.U.

Bell County

G. P. Shelton et al No. 1 Nelson, Michael Griffin Sur. S.D. 1,208 ft.

Bexar County

C. A. Smith's No. 1 W. G. Schuwirth, Jose Antonio de la Garza Sur. T.D. 1,165 ft.; abd.
J. A. Tarver's No. 1 Florence Lam, Manuel de Luna Sur. 3. S.D. 1,598 ft.

Blanco County

E. L. Nixon's No. 3 Crist, John McClenechen Sur. 94. S.D. 50 ft.

Brooks County

Magnolia Pet. Co.'s No. 1 Vivian Rust, La Gloria townsite subd. Drlg. sh. 3,317 ft.

Caldwell County

Dr. J. F. Atha's No. 1 G. W. Carter, Gideon Pace Sur. T.D. 1,793 ft.; 7-in. csg. 1,744 ft.; swbg.; showing some oil.

Calhoun County

Coronado Corp. No. 1 K. Welder, Hidalgo Sur., 3 mi. SE Seadrift. Drlg. sh. 7,630 ft.

Cameron County

Sal Vieja Oil Co. et al's No. 2 Gatewood Newberry, San Martin gr. T.D. 7,791 ft.; rng. sur.

De Witt County

Atlantic Ref. Co.'s No. 1 Pearl Conwell, Chas. Lockhart Sur. Loc.
Marshall Purvis No. 1 Afflerback, L. W. Criswell Sur. T.D. 6,450 ft.; P.B.; sdtrkd.; drlg. sh. 6,606 ft.

Duval County

W. L. Catlin et al No. 1 Louis Escapule, J. Poitevent Sur. No. 73. Loc.
Harvey & Henderson's No. 1 Welder, Samuel Alexander Sur. T.D. 2,698 ft.; abd.
Magnolia Pet. Co.'s No. 1 D.C.R.C., J. Poitevent Sur. Drlg. sh. 220 ft.
Ownby Drlg. Co.'s No. 1 Hinojosa, A.B. &M. Sur. 131. Drlg. sh. 2,940 ft.
Standard Oil Co. of Texas' No. 1 Jack Casey, San Pedro de Charco Redondo gr. T.D. 6,746 ft.; 7-in. csg. to test 6,722 ft.; flwg. gas and dist.; tstg.

Falls County

J. Shaunfield No. 1 Barganier, J. M. Graham Sur. T.D. 1,195 ft.; Buda L.; S.S.O.; waiting on csg.

Goliad County

D. C. Matthews et al's No. 2 G. J. Swickheimer, Wm. Patterson Sur. (Fannin field). Drlg. sd.&sh. 2,084 ft.

Gonzales County

Mudge Oil Co.'s No. 1 T. G. Edwards-Wesley, W. Pace Sur. S.D. 500 ft.

LEGAL

Department of the Interior, United States Land Office, Santa Fe, New Mexico. Notice is hereby given that leases of the oil and gas deposits in the following lands in the Fulger Basin gas field, undefined, New Mexico, are offered to the responsible qualified bidder of the highest bonus per acre, pursuant to the provisions of section 17 of the leasing act of February 25, 1920 (41 Stat. 437) as amended, at the royalty rate scale in the lease form shown in circular 1386, at a sale to be held in the office of the Register of the district land office at Santa Fe, New Mexico, at 10:00 o'clock on October 26, 1939: Unit No. 1, SE¼ SW¼ Sec. 10, W½ SW¼, SE¼ Sec. 15, T. 29 N., R. 12 W., N.M.P.M., 280 acres, and Unit No. 2, N½ and N½ S½ Sec. 22, T. 29 N., R. 12 W., N.M.P.M., 480 acres. The units may be consolidated in a single lease to the same qualified bidder. The successful bidder must deposit on the day of the sale a certified check on a solvent bank, or cash, for one-fifth of the amount of each bid, and file a showing of qualifications to receive the lease required by section 17 of General Land Office circular 1386. The remaining four-fifths, together with the annual rental in advance at the rate of $1 per acre, must be paid and a $5000 corporate surety bond must be furnished prior to the issuance of the leases. The bidders are warned against violation of the provisions of section 59 of the United States Criminal Code approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids at the discretion of the Secretary of the Interior. Register.

E. E. Young No. 1 Moore, D. O. Warren Sur. S.D. 2,860 ft.

Guadalupe County

Burton-Garvin & Womack's No. 2 Henry Weiß, E. de Los Santos Coy Sur. No. 93. R.U.

Hays County

B. C. Mann et al No. 1 Reeder, R. Vaughn Sur. T.D. 3,375 ft.; abd.

Jim Hogg County

Magnolia Pet. Co.'s No. 4-A Merchant State Bnk. & Tr. Co., S. L. Fite Sur. T.D. 2,513 ft.; abd.
Mayfair Oil Corp.'s No. 1 I. R. Gutierrez, C. Gutierrez Sur. 164. R.U.
C. A. Nibert et al's No. 1 Yeager Sur. 20. S.D. 1,316 ft.

Jim Wells County

Austin Pet. Co. No. 1 H. M. Reed (8 mi. NW Orange Grove), J. Poitevent Sur. Cmtd. surf. pipe 190 ft.; S.D. 210 ft.
Rodney DeLange et al's No. 1 Maggie McNeill, Benito Lopez de Jean gr. Tstd. 450 lb. pres.; D.S.T. 4,762-80 ft.; T.D. 5,410 ft.; 5½-in. csg. 4,880 ft.; will perf. 4,784-90 ft.
H. H. Howell et al's No. 1 N. Hinojosa, S.K.&K. Sur., Sec. 229. Drk.
Magnolia Pet. Co.'s No. 1 C. C. Hornsby, Los Olmos y Loma Blanca gr. Drlg. sh. 5,380 ft.
Magnolia Pet. Co.'s No. 1 W. C. Hornsby (La Gloria field). R.U.
Magnolia Pet. Co.'s No. 1 E. H. Stolze et al, Los Olmos y Loma Blanca gr., Lot 16, Blk. 10. Drlg. sh. 6,160 ft.
V. J. Meyer and V. F. Simon's No. 2 Shear, A.B.&M. Sur. (Magnolia City field). R.U.
Parr & Delaney Oil Co. et al's No. 1 P. Garcia, La Anima Solo gr. S.D. 5,051 ft.
Royal O. & G. Co.'s No. 1 P. Garcia, La Trinidad gr. T.D. 6,015 ft.; 7-in. csg. 4,705 ft.; tstd. S.W. and oil; abd.

Kleberg County

Humble O. & R. Co.'s No. 1 M. Garza, Rinconde Santa Gertrudis gr. Drlg. sh. 5,380 ft.
Pure Oil Co.'s No. 1 State, Tr. 171 (Bird Island field). Drlg. sh. 6,420 ft.

Lavaca County

Midway O. & R. Co.'s No. 1 Annie Schumacher, T. Wix. 6,339 ft.; cg. S.W. sd. 6,570 ft.

Lee County

Fred Pederson et al No. 1 Brown, David Hudson Sur. Pmpd. 100 B.F.; 36 hrs.; 3 bbl. oily emulsion; ed. L. 6,461-90 ft.; T.D. 6,571 ft.; prep. to dpn.

Live Oak County

Northworthy Proc. Co. et al's No. 1 Knight, T. R. Johnson Sur. T.D. 4,013 ft.; abd.
A. R. Pohler's No. 1 A. J. Turner, Stephen Hays Sur. Drlg. sh. 899 ft.
L. W. Stieren's No. 3 Lange, Thos. Adams Sur. T.D. 1,497 ft.

McMullen County

J. C. Carter's No. 1 Thomas Franklin, E. L. Taylor Sur. 30. Loc.
Harrison & Ross' No. 1 T. A. Bracken, W. W. Allsberry Sur. 30. Cg. 825 ft.
C. D. Scarborough No. 1 First Natl. Bk. of Rosebud, Jas. Garner Sur. Cg. 1,443 ft.
Wellington Oil Co.'s No. 1 Sam Sanger, C. P. Smith Sur. 194. Drlg. sh. 1,986 ft.

Medina County

Elstone Oil Co.'s No. 1 Wm. Mann, J. Campbell Sur. 24. T.D. 903 ft.; 8¼-in. csg. 635 ft.

Milam County

M. B. Cloud's No. 1-B Henniger, S. C. Robertson Sur. 7-in. csg. 700 ft.; T.D. 777 ft.; pmpd. 1½ B.O. in 5 hrs.; pmpd. dry; W.O.
M. A. Hays et al's No. 1 Sroboda, Wm. Punchard Sur. Drlg. sh. 1,010 ft.
W. H. Lawrence et al's No. 1 J. F. Bartek, Jose De Pena Sur. Drlg. clk. 1,015 ft.

Nueces County

N. W. Hunter et al's No. 1 A. R. Mantor, Briggs & Kuykendall subd., Blk. 23. Drlg. sdy. sh. 5,329 ft.
John Manley et al No. 1 Ruegg, Geo. H. Pauls subd. of Driscoll ranch. Loc.
Premont Pet. Co.'s No. 1 G. A. Langham, Los Sauces gr., Lot 12, Sec. 25. T.D. 5,240 ft.; tstd. 360 ft. oily mud. 30 ft. S.W.; T.D. 7,161 ft.; 7-in. csg. 5,681 ft.; perf. csg. 5,615-28 ft.; perf. csg. 5,069-79 ft.; rec. mud, gas, and S.W. on D.S.T.
Stanolind O. & G. Co.'s No. 1 Jennie Thompson, J. V. L. de Herrera gr. (Riverside field). Spd.

Refugio County

Norsworthy Prod. Co. No. 1 Wood, John Sinnott Sur. T.D. 6,508 ft. (cor.); S.D.
Rutherford & Royal O. & G. Co.'s No. 1 E. E. Swift, Esteben Lopez Sur. Cg. 6,312 ft.

San Patricio County

Diamond Half Oil Corp.'s No. 1 Walter F. Timon, San Patricio de Hibernia Sur. Drlg. sh. 5,440 ft.
Seaboard Oil Co.'s No. 1 M. C. Smith, Juan Hart & Sons Sur. T.D. 7,296 ft.; 5½-in. csg. 7,168 ft.; perf. csg. 7,058-60 ft.; tstd. S.W.; perf. csg. 6,995-7,000 ft.; tstd. gas and dist.; perf. csg. 5,915-25 ft.; tstd. S.W.

Wellington Oil Co.'s No. 2-B Welder, Victoriano Tares & Pedro Villareal Sur. Drlg. 4,757 ft.
Wellington Oil Co. No. 6 Welder, Hart Sur. (Angelita). T.D. 7,051 ft.; 5¼-in. csg. 6,305 ft.; perf. csg. 6,225-35 ft.; R.U. to pmp.

Starr County

Hebert Aid's No. 1 M. Muniz, Jose F. Garza, Porc 71. R.U.
Banks, Miller Oil Co.'s No. 1 McLean, Unit 3, Valle Del Rico Rio Grande subd., J. B. Villareal Porc. T.D. 2,756 ft.; cmtd. csg. 2,425 ft.; perf. csg. 2,316-24 ft.; rec. S.W.
C. L. Foster's No. 1 H. Garza, Juan Salinas, Porc. No. 71. S.D. 100 ft.
W. E. Gilbert's No. 1 Escobas, Jose F. Garza Porc. 71. R.U.
Gilcrease Oil Co.'s No. 1 I. G. Gutierrez, J. LaGarza Falcon Porc. 104. S.D. 1,706 ft.
Lynes & Robertson's No. 1 Villareal, C. C.S.D.&R.G.N.G.R.R. Sur. 241. Loc.
Verne Clopton's No. 1 Lee M. Green, J. J. Garza Falcon, Porc. 81, Lot 7, Blk. 85. Loc. abd.
Randon Oil Co.'s No. 1 R. E. Margo, Los Comitas gr. T.D. 5,707 ft.; abd.
W. W. Zimmerman's No. 1 Wood, Porc. 84. Drlg. sh. 2,510 ft.

Travis County

G. C. Richardson's No. 1 U. Chamberlain, Jas. Manning Sur. 37. T.D. 725 ft.; abd.

Victoria County

Colton & Colton's No. 1 E. Terrell, A. Bideck Sur. R.U.
Houston Oil Co.'s No. 1 E. C. Dietzel, P. Gallardo Sur. R.U.
Houston Oil Co.'s No. 1 Emma Martin, Pedro Gallardo Sur. T.D. 2,935 ft.; perf. csg. 2,860-75 ft.; comp. as gas well.
Trinity Drillers et al's No. 1 T. G. Edwards, L. Rodriquez Sur. 10¾-in. csg. 485 ft.; T.D. 6,006 ft.; perf. csg. 5,978-85 ft.; rec. S.W.; T.A.
Trinity Drillers et al's No. 1 B. Vogt, T. T. Victoria Sur. T.D. 2,705 ft.; abd.
Wellington Oil Co. et al's No. 1 J. W. Boothe, T.&N.O. Sur., Blk. 1, Sec. 10. Drlg. 6,030 ft.

Webb County

O. W. Killam's No. 1 fee, H.E.&W.T. Sur. 1859. T.D. 2,784 ft.; run 7-in. csg.
Magnolia Pet. Co.'s No. 2 Garcia-Arriba Alberca De Arriba gr. Drlg. 2,620 ft.
Mayfair Oil Corp.'s No. 3 Bruni, J. V. Borego gr. Loc.
J. R. H. Moore et al's No. 1 A. S. Billings, C.C.S.D.&R.G.N.G. Sur. 13. Loc.
Tide Water Asso. Oil Co. No. 7 Bruni, Blk. 7, M. Arispe gr. (deep test Bruni field). Drlg. sh. 7,103 ft.

Williamson County

Brown-Gardner et al's No. 1 G. W. Griffin, Harrison Owens Sur. S.D. 2,214 ft.
Knisely, Aldridge, Cockburn's No. 1 D. M. Sloan, J. W. Baker Sur. 2. R.U.

Zapata County

Joe Martines No. 2 Bruni, J. V. Borego gr. T.D. 938 ft.; S.D.

WEST TEXAS WILDCATS

Brewster County

H. D. Wilcox's No. 2 Kokernot, Sec. 23, Blk. C, J. V. Massey Sur. Drlg. 1,610 ft.

Cochran County

Atlantic Ref. Co.'s No. 1 Boyd, Labor 11, Lge. 56, Oldham C.S.L. Drlg. 365 ft.
Dean & Hyde's No. 1 Reed & Taylor, Sec. 21, Harrison & Brown Sur., SE of Duggan pool. M.I.R.
Humble O. & R. Co. No. 1 J. Westheimer, Lab. 1, Lge. 146, Stonewall Co. Sch. Ld. Drlg. 7,145 ft.

Crane County

Gulf Oil Corp. No. 5 M. B. McKnight, Sec. 1, Blk. 21-B, P.S.L. Sur. Drlg. 5,320 ft.
Gulf Oil Corp.'s No. 12 Waddell, Sec. 30, Blk. 26-B, P.S.L. Sur. Loc.

Crockett County

Kimberlin's No. 1 J. W. Robbins, Sec. 4, Blk. B, G.C.&S.F. Sur. S.D.R. 45 ft.

Crosby County

Gulf Oil Corp. No. 1-C Swenson, Sec. 96, Blk. 2, H.&G.N. Sur. Drlg. 7,576 ft.

Dawson County

Ray Albaugh's No. 1 Dewey Hogg (O. W.D.D.). Drlg. 4,180 ft.

Ector County

I. T. I. O.'s No. 1-B Johnson, Sec. 39, Blk. 43, T.&P. Sur. Drlg. 1,850 ft.
Sloan & Zook No. 1 J. L. Johnson, Sec. 34, Blk. 43, T.&P. Sur. P.B. 4,167 ft.; tstg. 24 B.O.P.D.; P.B. 4,167 ft.; 19 B.O. and 16 B.W.; 6 hrs.; pmpd. 7 B. O. and 7 B.W. daily for 7 days; S.D.O.

El Paso County

Tri-State Oil Co.'s No. 1 Kimble, Sec. 237, A.T.&S.F.R.R. Sur. U.R. 2,133 ft.

Gaines County

Osage Drlg. Co.'s No. 1 G. D. Johnson, Sec. 262, Blk. G, W.T.R.R. Sur. Drlg. 4,450 ft.
Stanolind O. & G. Co.'s No. 1 American Warehouse, Sec. 5, D.&W. Sur., offset to No. 1 Rayner, discovery well. Bldg. road.

Howard County

F. H. E. Oil Co. et al No. 2 D. H. Snyder, Sec. 21, Twp. 1s, Blk. 30, T.&P. Sur.; (extension). C.O. 2,855 ft.
M. L. Richards No. 1 Read, Sec. 36, Blk. 30, T.&P. Sur. Drlg. 2,645 ft.

Hudspeth County

Haymon Krupp Oil & Ld. Co. No. 1 Thaxton, SE¼ Sec. 34, Blk. 74, Twp. 6, S.G. 6,340-45 ft.; T.D. 6,402 ft.
Haymon Krupp No. 1 Briggs, Sec. 24, Blk. 73, Twp. 7, T.&P. Sur. S.D. 6,015 ft.

Irion County

P. I. Fox et al No. 1 J. M. Nutt, Sec. 4, Gonzales C.S.L. S.D.O. 335 ft.

Lynn County

John L. Baldridge No. 1 Alma Lbr. Co., Sec. 151, H.E.W.T. Sur. Drld. out to 3,570 ft.; S.D.O.

Pecos County

Rockdale Oil Co. No. 1 A. Sullivan, Sec. 72, Blk. 10, H.&G.N. Sur. F. 90 B.O.P.D. 1,771-85 ft.
Stanley Thompson No. 1 Elsinore Cattle Co., Sec. 54, Blk. D, G.C.&S.F. Sur. Drld. by 7,073 ft.; 500 ft. S.W. in hole; S.D.O. 7,342 ft.
Superior Oil Co. No. 1 V. W. Crockett-Continental Oil Co., Sec. 7, Blk. 110, T.C.R.R. Sur. C.&P.

Presidio County

Marfa Oil Co. No. 1 Fischer ranch, Sec 31, Blk. 8, G.H.&S.A. Sur. M.I.M.

Scurry County

Coffield & Guthrie's No. 1 Reiter, Sec 155, Blk. 97, A.&T.C. Sur. Drlg. 445 ft.

Terrell County

E. M. Thomasson No. 1 Bates, Sec. 31 Blk. 1, H.&G.N. Sur. Drlg. 975 ft. (no report).

Tom Green County

Dan Short's No. 1 J. G. Davidson, NW part of Lovie P. Moore Sur.; 3,500-ft. test. S.D. for bailer 2,476 ft.

Upton County

N. A. Moore's No. 1 A. M. Mayhew, Sec. 2, Blk. W, G.C.&S.F. Sur. S.D. 1,625 ft.

Ward County

Gulf Oil Corp. No. 5 Wristen, Sec. 18, Blk. 5, H.&T.C. Sur.; scheduled Ordovician test. Straightening hole; drlg. cmt. 2,240 ft.
Magnolia Pet. Co.'s No. 2-43 Sealy, Sec 43, Blk. F, G.M.M.B.&A. Sur. Drlg. 2,830 ft.; S.O.

Yoakum County

Sloan & Zook and T. N. Sloan's No. 1 J. E. Fitzgerald, Sec. 22, Blk. D, Gibson Sur., extreme NE cor. of county. C.&P.

TEXAS PANHANDLE

Hartley County

Phillips Pet. Co. No. 1 W. K. Gordon, Sec. 3, Blk. 44, H.&T.C. Sur. Drlg. 3,455 ft.; showed 34,300,000 cu. ft. gas below 3,415 ft.; drlg. 3,750 ft.

Ochiltree County

James R. Macon et al No. 1 W. R. Norris, SW SE Sec. 212, Blk. 43, H.&T.C. Sur. Bailing rotary fluid preparatory to resuming drlg. with C.T.; T.D. 6,274 ft. prep. acd. and test sec. at 5,000 ft.; est. 6,000,000 cu. ft. gas on D.S.T.; C.O. 5,265 ft.

Potter County

Les Whitaker No. 1 D. Pavillard, Sec 101, Blk. 2, A.B.&M. Sur. C.O. 550 ft.

Sherman County

Hagy, Harrington & Marsh's No. 1 W. Freeman, Sec. 46, Blk. 2, G.H.&H. Sur. R.U.R.

Wheeler County

Smith Bros. Ref. Co.'s No. 1 Ribble, Sec. 46, Blk. 5-A, H.&G.N. Sur. S.D. 4,133 ft.

E. C. TEXAS WILDCATS

Anderson County

A. Baggett's No. 1 J. R. Gillispie, J. R. Ferguson Sur., 2½ mi. NE of Frankston. S.D. 4,350 ft.
R. H. Williamson No. 1 O. G. Rogers, Wm. Greenwood Sur.. 6 mi. SW of Elkhart. Prep. test 2,875 ft.; S.S.O.

Angelina County

Ginter Bros. No. 7 Copes Hrs., J. Morin Sur., 3 mi. E of Dibol. S.D. 800 ft.
K. L. McHenry's No. 2 Russell est., A. Flores Sur., 4 mi. N Lufkin. Prep. rng. csg. topped sd. 1,002 ft. T.D. 1,004½ ft.

Ellis County

C. M. Beckner et al No. 1 H. A. Styles, A. Bullock Sur., 3¼ mi. W of Maypearl. S.D. 905 ft.

Falls County

R. D. Salisbury No. 1 W. M. Shankle, J. A. Manchaca Sur., 1½ mi. NE Chilton. Recmtg. pipe 1,274 ft.

Fannin County

H. W. English's No. 1 T. W. Ayers, J. D. Seales Sur. S.D. 687 ft.
C. Newburn's No. 1 A. G. Allen, M Caldwell Sur., 7 mi. NE of Banham Drk.

Freestone County

Brothers Oil Co.'s No. 1 P. D. C. Ball est., M. Rionda Sur., 5 mi. NW of Butler. Drlg. 5,048 ft.

Grayson County

Ross & Marshall's No. 2 E. Christman. M. Ahult Sur., 5 mi. NW of Denison. Drlg. 650 ft.
Rutledge Oil Co.'s No. 1 Williams, S. Nix Sur., 2 mi. NE of Van Alystine. Drlg. 2,666 ft.

Houston County

J. C. Cook and Shell Oil Co.'s No. 1 B T. Masters, Levina Carpenter Sur., ⅛ mi. NW of Grapeland pool; 10,000-ft test. Drk.
Grapeland Oil Co.'s No. 1 Guice, J. D. J Procilla Sur., 2 mi. W of Grapeland Top. sd. 5,908 ft.; prep. comp. as distillate well.
J. C. Wynne et al's (Shell Oil Co., Inc.) No. 1 G. E. Dorsey, M. Sallas Sur. 2½ mi. S of Percilla; E 102 ac. of tr.; 10,000-ft. test. Drlg. 4,060 ft.

Hunt County

K. E. Jennings' No. 1 V. T. Banks, J. W. Haynes Sur., 5 mi. NE of Greenville; reinstated to test sec. at 2,114 ft.; P.B. 2,114 ft.; bailing.

Limestone County

Roy Handley's No. 1 W. E. McDaniel, A. Bass Sur., 1 mi. N of Prairie Hill. Drlg. 135 ft.
M. Samuel's No. 1 C. Barrow, W. G. McKinsey Sur., 4 mi. NW of Thornton. Fsg. drill pipe 5,968 ft.

Nacogdoches County

D. McDaniels No. 1 T. H. Seale, J. A. Cherino Sur., just outside of city limits of Cherino. Prep. to D.D. 842 ft.

Navarro County

J. H. Burke's No. 1 Johnson, J. P. Harden Sur., 1½ mi. N of Powell. Drlg. 1,150 ft.
C. F. Carter's No. 1 Allen Eden, M. Shire Sur., 2 mi. NE of Angus. S.D. 775 ft.

Red River County

Dave Flesch's No. 1 Bailey, J. Robbins Sur., 1 mi. W of Bagwell. Drlg. 2,538 ft.
Kansas-Oklahoma Pet. Corp. No. 1 R. H. Ringwald, A. Moore Sur., 3 mi. W of Manchester. Drlg. 865 ft.

Rusk County

A. O. Whittington's No. 1 Kangerga Bros., lgn. Castro Sur., 9½ mi. N and slightly E of Pirtle. Bldg. drk.

Smith County

Dr. Grant's No. 1 J. W. Waters, J. Stapler Sur., 1¼ mi. NE of Garden Valley. Drlg. 3,650 ft.
Martin & Moore No. 1 B. H. Lunceford, W. Shipp Sur., 3 mi. NW of Garden Valley. S.D. 2,085 ft.
Texas Co.'s No. 1 A. A. Scritchfield, D. Page Sur., 2 mi. NW of Bullard. Drlg. 7,280 ft.

Trinity County

Gossage et al's No. 1 First Natl. Bnk., B. F. Wright Sur., S of Trinity. R.U. and S.D.

Van Zandt County

O. W. Killiam's No. 1 Republic Ins. Co., J. Salinga Sur., 2 mi. NE of Myrtle Springs. Drlg. 3,510 ft.

NORTH TEXAS WILDCATS

Archer County

L. T. Burns' No. 1 J. Penartz, Sec. 19, Clark & Plumb Sur., Blk. 4. Drk.
L. B. Burns' No. 1 H. Wilmut, Lot 13, G.N. Smith Sur., Abst. 393 (4,400-ft. semiwildcat). Loc.
W. B. Hamilton's No. 5 C. E. Graham, J. D. Young Sur. A-1249. Drlg. 3,840 ft.
Waldo E. Stephens et al's No. 1 Hattie B. Adae, SE part of Blk. 7, Palo Pinto Co. Sch. Lds., 3 mi. SE of Griffin pool. Set 10-in. 100 ft.; R.U.R.

Clay County

L. T. Burns No. 1 J. T. Pickett, W. W. Yearly A-745, 6⅝-in. 4,430 ft.; O.S. 4,430-44 ft.; P.B. 4,380 ft.; drld. out to 4,450 ft.; S.D.O.
Continental Oil Co. et al's No. 1 O. O. Ross, W. Walker Sur. A-703. Drk.
Frabor-Hodges and Sinclair Prairie Oil Co.'s No. 1 Scaling, G. P. Meade Sur., Abst. 928. Loc.
Shell Oil Co., Inc.'s No. 1 Scaling, C of Blk. 87, J. H. Belcher Sur., 4 mi. S of Burns pool. Drlg. 5,310 ft.

Cottle County

J. E. Burns et al No. 1 J. E. Moss, Sec 5, Blk. L, A. Forsythe Sur. Jnkd. 225 ft.; skid 20 ft. S.; drlg. 675 ft.

Hardeman County

Amerada Pet. Corp. No. 1 W. M. Rice Sec. 81, Blk. H, W.&N.W. Sur. Drlg 8,030 ft.
Carter & Taylor's No. 1 Norton, NW cor. 91-ac. tr. in Blk. 3, Robt. Young Sur., 16 mi. N of Quanah. S.D. 256 ft.
G. T. Kimble No. 1 M. T. Walling, SW¼ Sec. 368, Blk. H, H.W.&N.W. Sur., 5,500-ft. test. Drlg. 4,100 ft.

Jack County

Harper Pet. Corp. No. 2 S. V. Vanhooser, Abst. 1926, J. W. Morrow Sur. T.D. 2,030 ft.; S.D.O.
Pitzer & West's No. 1 Sloan, Sec. 2786, T.E.&L. Sur. Drlg. 1,035 ft.

Montague County

Sackett and Continental No. 1 J. L. Brown, Sec. 58, E.T.R.R. S.D.O. 5,046 ft.

Throckmorton County

H. E. Bedner et al's No. 2 Tom Merrison, Sec. 1614, T.E.&L. Sur. Set 8¼-in. 3,495 ft.

Wichita County

J. R. Price and others No. 1 Hodges, NW¼ of Block 13, Burkburnett townsite, Thomas Redman Sur., Abst. 249. T.D. 1,710 ft.; 6⅝-in. 1,670 ft.; shot with 17 qt.; S.D.O.

Wilbarger County

Lawson & Leavall's No. X-1 W. T. Waggoner, NE¼ Sec. 37, Blk. 4, H.&T.C. R.R. Sur. Drlg. 2,000 ft.
Rogers & Cavin No. 1 A. P. Morris, Sec 3, Blk. 14, SW of Harrold. S.D. 2,373 ft.; wtr.

Wise County

W. F. Holifield et al's No. 1 J. Redell, Rebecca Coleman Sur., Abst. 155, 2 mi. E of Bridgeport. Moved off spdr.
H. M. Muse No. 1 F. F. Kaker, Blk. 16, Matagorda Co. Sch. Ld. Pits.

Young County

H. W. Dyer's No. 1 M. G. Cheney, M. L. Terry Sur., Abst. 1261. Loc.
Gentex Oil Co. No. 1 Burch, Abst. 1770, T. J. Burch Sur. Set 5½-in. at 4,145 ft.; T.D. 4,364 ft.; 5⅛-in. 4,085 ft.; recmtd. and W.O.C.
Stanley Thompson et al No. 1-A J. C. Vaughn, Blk. 3, T.&N.O.R.R. Sur., Abst. 1248; 4,250-ft. cable tool test T.D. 4,335 ft.; P.B. 4,060 ft.; to test L.S.O. 3,937-4,060 ft.
A. T. Strong et al's No. 1 E. C. Stovall, Sec. 2946, T.E.&L. Sur. (4,800-ft. test). Loc.
Taubert & McKee Drlg. Co.'s No. 1 Shanafelt, P. Pointevent Sur., Abst. 1309. 6⅝-in. 4,012 ft.; T.D. 4,188 ft.; S.D.O.

EAST TEXAS

(Border Counties)

Cass County

G. Scott Hammond's No. 1 Price, C S½ W 40 acres, 125-acre tr., Chas. Ames Sur. 10¾-in. csg. 1,045 ft.; T. Gloyd 5,860 ft.; por.; cleaned hole; set 5½-in. csg. 5,865 ft.; tstg. est. 500,000 cu. ft. gas; open tbg. at 5,955 ft.

Marion County—Other

Otto Davis' No. 1 Hart, Gaines Coore Sur. Set 10-in. csg. 22 ft.; W.O.C.
M. D. Fitzwater No. 1 Mrs. Mary Duncan, Jesse Fitzgerald Sur. T.D. 2,558 ft.; swbd. and bailed dry; tstg.
J. D. Reynolds' No. 2-B Terry est., W. Coore Sur. T. Tokio 2,333 ft.; T.D. 2,380 ft.; flwd. 40 B.P.H. for 2 hrs. and went dead; W.O.S.R.
J. D. Reynold's No. 3-B Terry est., 660 ft. EL, 2,250 ft. SL, W. Coore Sur. M.I.M.
Sutton et al's No. 1 W. Taylor, 450 ft. EL, midway N and SL, B.B.B.&C.R.R. A-54 Sur. Set 6-in. csg. 2,289 ft.; T.D. 2,313 ft.; pulled lnr.; swbg. some heavy oil.

Marion County—Rodessa

Ark. La. Gas Co.'s No. 2 W. T. Neilson, 1,320 ft. N line, 620 ft. SE line, R. Bennington Sur. Drlg. sh. 3,820 ft.
Gulf Oil Corp.'s No. 3 Ray, 514 ft. NL, 641 ft. EL, 65-ac. tr., J. Hanks Sur. R.U.
C. H. Lyons' No. 1 Jackson, 473 ft. NL, 460 ft. WL, 20-ac. tr., J. Hanks Sur. Drlg. 50 ft.
Texas Co.'s No. 6 Braden, J. M. Fitzgerald Sur. Drlg. 2,110 ft.

Panola County

Turner & Smith No. 1 Panola Dev. Co., 2,500 ft. NL, 1,000 ft. WL, Gillespie Sur. Set 10¾-in. csg. 6,000 ft.; 2 D.S. T.s 5,049 ft. failed; anhy. 4,950 ft.; por. L. 5,040-50 ft., S.W.; cg. hd. L. 6,100 ft.

Shelby County

Natural Gas Dist. Corp.'s No. 1 W. B. Childress, 1,000 ft. W of Redditt & Gray's No. 2 Pickering, W. M. Snider Sur. Drlg. 3,550 ft.
W. H. Neel et al's No. 1 J. W. Hanson, C 64-ac. tr., A. Sanford Sur. R.U.

WEST CENTRAL TEXAS DISTRICT

Brown County

A. D. Bruce's No. 1 L. S. Mauldin, SW¼ Sec. 15, H.T.&B. Sur., Abst. 464. Fsg. tools 1,691 ft.
J. L. Derrich No. 1 C. V. Harris, Sec. 617 Prosper Mangle Sur. Fsg. tools 1,972 ft.
Kynaston & Cullison's No. 1 L. A. Hill SW¼ Sec. 35, H.T.&B. Sur. Drlg. 205 ft.
C. C. Lockwood's No. 1 T. B. Landreth, SE cor. of Subdivision 2, J. Dickinson Sur. 10, S.D.O. 923 ft.; S.S.O. 922-23 ft.
Plains Prod. Co.'s No. 1 Hill, SE cor. W 123 ac. of M. Mudgett Sur. 63, S.D.O. 749 ft.
Wilson Oil Co., Inc., No. 1 M. Bowden, Sec. 138, W. E. Gilliland Sur. Fsg. tools 2,100 ft.

Callahan County

S. Henderson et al's No. 1 I. N. Jackson, SW¼ Sec. 20, E.T.R.R. Sur. Drlg. 467 ft.; no report.
Kendrick & Van Zandt's No. 1 A. W. Johnson, SE cor NE¼ Sec. 62, L.A.L. Sur. Drlg. 400 ft.
J. L. Reeves et al's No. 1 P. G. Hatchett, NW¼ Sec. 30, D.&D.A. Sur. S.D.O. 365 ft.
Hal Wagnon et al's No. 1 Wm. Isenhower, Sec. 304, Blk. 5, S.P. Sur. S.D.O. 550 ft.

Coleman County

B. Banner's No. 1 R. R. Powell, NW part of Moses Little Sur. 40. Spd. and S.D.
Coleman Oil & Gas Co.'s No. 1 G. Powell, SE part of Moses Little Sur. No. 40 Drlg. 1,975 ft.
Kynaston-Culberson-Culberson & Bozeman No. 1 J. P. McCord, Sec. 159, J W. Meeks Sur. S.D.O. 2,300 ft.

Concho County

Natural Resources Corp. No. 1 Armor, Sec. 105, Blk. 72, T.&N.O. Sur. S.D.O. 1,216 ft.

Coryell County

W. E. Crews' No. 1 S. C. Blanchard, W part of Wm. H. King Sur., 2 mi. SW of Mound, 5,000-ft. test. Loc.

Eastland County

Dobbs Oil Corp.'s No. 1 Pierce, 330 ft SL and 330 ft. EL of 214-ac. tract in Sec. 35, Blk. 2, H.&T.C. Survey. Drlg. 800 ft.; no report.
R. R. Groce's No. 1 J. M. Rush, Sec. 130, Blk. 3, H.&T.C. Sur. S.D.O. 1,728 ft.
F. S. Holden's No. 1 J. F. Nichols, L. A. McDonals Sur., Abst. 829. S.P. and S.D.
Lone Star Gas Co.'s No. 1 F. J. Kimmel, Sec. 87, Blk. 4, H.&T.C.R.R. Sur. Drlg. 1,432 ft.
J. L. Reeves No. 1 J. V. Parker, NW part of Wm. Van Norman Sur. Fsg. 3,077 ft.; S.S.O. 3,019-41 ft.
W. A. Stiles et al's No. 1 H. F. Duncan, Sec. 10, Blk. 2, H.&T.C.R.R. Sur. Pits.

Erath County

Wayne Chandler's No. 1 Chandler, J. W. Moore Sur., Abst. 571. Fsg. 4,794 ft.
T. Gray's No. 1 C. Young Hrs., NW cor. of Stephen Smith Sur., Abst. 682 S.D.O. 89 ft.
T. G. Jackson No. 1 J. W. Taylor, Prater Sur., Abst. 1029, 4 mi. NE of Desdemona. S.D. csg. 2,400 ft.
J. F. Monissey et al's No. 1 R. J. Sikes, J. Hargrave Sur., 6 mi. N of Stephenville; 5,000-ft. test. Rng. csg. 260 ft.

Hamilton County

Wallace & Vickers' No. 1 C. C. Lund, J. P. Bailey Sur. 51. S.D.O. 3,453 ft.

Hood County

D. S. Sowell's No. 1 Burton, L. Campbell Sur. S.D.O. 4,380 ft.; may deepen; no report.

Jones County

Healey & Walters' No. 1 Warren, D. P Rowland Sur. Drlg. 2,113 ft.
Keeler's No. 1 Radford, SE¼ Sec. 20, Blk. 4, H.&T.C.R.R. Sur. S.D.O. 1,800 ft.
Moutray-King Oil Co.'s No. 1 J. B. Rutledge, Subd. 33, Sec. 2, Blk. 20, T.&P. Sur. Drlg. 1,650 ft.
A. H. Tarver No. 1 A. S. Barkley, Sec. 54, Deaf and Dumb Asyl. Lds. S.D.O. 5,118 ft.
Ungren & Frazier's No. 1 J. W. Barnes, N 80 acres of SE¼ Sec. 48, Blk. 15 T.&P. Sur. T.D. 2,250 ft.; S.D.; may abd.

Nolan County

Green & Owens' No. 1 Tipton, Sec. 43, Blk. 19, T.&P. Sur. Sat. from 5,135-38 ft.; 116 B.O. in 2 hrs.; est. 450 B.O. P.D.; prep. drill plug 5,138 ft.; T.D.
Plymouth Oil Co. No. 1 F. M. McClure, Sec. 49, Blk. 23, T.&P. Sur., 8,000-ft test. Drlg. plug 4,501 ft.

Palo Pinto County

W. K. Gordon No. 1 W. R. Ringe, Sec. 81, Blk. 2, T.&P. Sur. S.D.O. 3,563 ft.; 2,000,000 cu. ft. gas; prep. comp. as gas well.
J. Jones' No. 1 R. H. Gauldin, NW cor. Sec. 1743, T.E.&L. Sur. Drlg. 120 ft.

Parker County

Brown & Gardner Bros. No. 1 Gilbert, T.&P. Sur., Abst. 1958. S.D.O. 3,083 ft.

Shackelford County

Georgian Oil Corp.'s No. 1 Blach ranch, C NE½ of T.E.&L. Sur. No. 390, 10 miles NE of Albany, Ordovician test. Loc.
C. R. Schuster No. 1 L. E. DeWitt, Blk 53, Univ. Lds. S.D. 3,040 ft.; wtr.

Stephens County

Geo. E. Fagg No. 1 Richardson, Sec. 5 Blk. 31, S.P.R.R. Sur.; 4,000-ft. test Drlg. 2,355 ft.
T. G. Shaw, Tr.'s No. 1 S. P. Stroud, NW¼ of G. Newton Sur., Abst. 128. Drlg. 1,985 ft.
A. G. Swanson No. 1 Veale-Frost, Sec. 37, Blk. 8, T.P. Sur. Drlg. 3,732 ft.

Stonewall County

Shell Oil Co., Inc., No. 1 A. E. Smith, Sec. 143, Blk. 1, H.&T.C. Sur.; 6,000 ft. test. Drlg. 2,940 ft.

Taylor County

Bradford's No. 1 V. B. Reeves, NW¼ Sec. 28, B.A.L. Sur. U.R. 915 ft.; T.D. 1,380 ft.
Sprotex's No. 1 A. L. Pittman, NW¼ Sec. 29, B.A.L. Sur. S.D. to test 1,740 ft.; S.S.O.

Northwest Co. Operations

CHATHAM, Ont., Oct. 14.—Extensive operations by Northwest Co., subsidiary of Imperial Oil, Ltd., are planned in the West Central Turner Valley area if tests now drilling in the lime secure production. Arrangements with Calmont Oils of Calgary affect 480 acres held by that company in S½ Section 18-19-2w5, north of Anglo-Canadian Oil Co.'s No. 8, and SE¼ Section 36-19-3w5, immediately northeast of Argus Royalties' No. 1. If Anglo-Canadian's No. 8, now drilling in the lime, secures production, the first Northwest-Calmont well will be drilled in Section 18, and the section in Section 36 if Argus' No. 1 proves a producer. The agreement calls for an additional five wells on the two parcels, development depending, however, on results secured in the initial tests. Calmont Oils supplies the drilling equipment and will operate the producing wells but puts up no part of the drilling costs; the Calmont company is allowed a somewhat larger share of production from the first two wells, while in subsequent wells the division will be on a sliding scale.

CRUDE-OIL PRICES IN REPRESENTATIVE FIELDS

Complete crude-price schedules are now being published in the first issue of each month. The last complete schedule was published in the October 5 issue. All changes in crude-oil price schedules will be published completely in the first issue following the announcement of the changes. Following are representative crude-price schedules in barrels (42 gal.):

East Texas	$1.10
Conroe	1.27
Tepetate, La.	1.03
Smackover, Ark., heavy	.73
Illinois basin	1.05
Pecos County, Tex.	.78
Lance Creek, Wyo.	.77
Bradford, Pa.	2.25

Gravity Schedule

Top prices include all gravities above grades designated and low prices include all gravities below grades designated:

	Signal Hill, Calif.	Oklahoma, Kansas	Gulf Coast Texas
14-14.9	$.80	...	...
15-15.9	.80	...	...
16-16.9	.80	...	...
17-17.9	.80	...	...
18-18.9	.80	...	...
19-19.9	.82	...	$.86
20-20.9	.85	$.70	.88
21-21.9	.88	.72	.90
22-22.9	.92	.74	.92
23-23.9	.95	.76	.94
24-24.9	.99	.78	.96
25-25.9	1.03	.80	.98
26-26.9	1.06	.82	1.00
27-27.9	1.10	.84	1.02
28-28.9	1.14	.86	1.04
29-29.9	1.17	.88	1.06
30-30.9	1.21	.90	1.08
31-31.9	...	.92	1.10
32-32.9	...	.94	1.12
33-33.9	...	.96	1.14
34-34.9	...	.98	1.16
35-35.9	...	1.00	1.18
36-36.9	...	1.02	1.20
37-37.9	...	1.04	1.22
38-38.9	...	1.06	1.24
39-39.9	...	1.08	1.26
40-40.9	...	1.10	1.28

Rejected Railroad Proposal Causes Sharp Questioning

THE story of the forthright rejection by two major oil companies of a railroad-sponsored proposal for the recapture of gasoline traffic in the Southeast because of "the possible application of federal and state antitrust laws" was unfolded Friday afternoon in the most dramatic session to be staged before the federal monopoly committee.

When Eugene L. Orvis, witness, had completed his testimony designed to support his allegation of a conspiracy between the railroads and major oil companies, William S. Farish, president, Standard Oil Co. of New Jersey, declared that since the record had been made on that point he requested leave for counsel to state how the matter was handled by their company. He thought such a statement was in order "since the record has been made and reached a state of fog with respect to it."

Edwin S. Hall, counsel for Standard Oil Co. of New Jersey, referring to the letter of President Pelley of the Association of American Railroads, said he wrote Mr. Pelley, saying: "I am seriously disturbed by the possible application of federal and state antitrust laws" to the proposal. "I wonder if your counsel has given consideration to this proposition?" Mr. Pelley replied, offering to have their counsel, J. Carter Fort, and Vice Pres. A. F. Cleveland discuss it. Since the legality of the railroad proposal had also been raised by H. D. Klein, vice president and general counsel for Texas Corp., a joint conference was arranged. He and Mr. Klein "insisted that the agreement proposed was possibly violative of state and federal antitrust laws" and that since the National Recovery Act was then in effect the only possible way in which such an arrangement could go forward would be to obtain the approval of Secretary Ickes as petroleum administrator and an executive order by President Roosevelt. Mr. Hall added that on February 18, 1935, he delivered in person a memorandum to R. G. Haskell, their new general sales manager, with the opinion that, "I believe the contemplated agreement should not be made."

Where Initiative Rested

The witness said the initiative rested with Mr. Pelley in the hope the petroleum industry would help stem the trend to truck transportation of its products.

On March 26, 1935, a letter was written to Mr. Pelley saying: "We have reached the conclusion that we cannot participate in the plan you suggest," and "that was the end," Mr. Hall said.

Mr. Hall said the proposal boiled down to four points: (1) Discontinuance by major oil companies of trucking both by their own and contract carrier trucks in excess of 50 miles from water terminals or refineries; (2) discontinuance of deliveries of products to dealers' or buyers' trucks at these points; (3) readjustments of interterritorial rates on petroleum products into the Southeast from trans-Mississippi points in the Southwest, and (4) reformation by the railroads in the Southeast of trackside filling-station leases upon railroad property.

Chairman O'Mahoney asked why the railroads would increase the interterritorial rates into the Southeast and still expect the oil companies to cooperate. "How could railroads eliminate truck competition by raising rates; what were the compensating advantages?" The advantages were summarized by Mr. Hall as (1) reformation of trackside station leases and (2) higher interterritorial rates which would look like an advantage to oil companies faced with competition in certain southern territory at interior points by all-rail shipments from the Southwest. He saw no advantage in it to Standard Oil Co. of New Jersey, and as to trackside stations they had but few.

The witness related that in the fall of 1934 the railroads invited traffic managers of oil companies to tell them what rate cuts were necessary to arrest the loss of gasoline traffic to motor trucks in the Southeast. A conference was held at the Vanderbilt Hotel, New York City, November 28, 1934, attended by officials of the southern railroads and traffic managers for the oil companies. The oil representatives took the position that if the rails wanted to try to retrieve this traffic they should reduce their rates and hope for the best.

Chairman Curious

Senator O'Mahoney sought to have the witness admit that the oil companies had initiated the rate adjustment matter. He told the witness that testimony, time and again, has been to the effect that the oil companies were using profits in the transportation branch to subsidize losses in marketing. Here, he said, the oil companies are shown to be willing to consent to the increased freight rates with resultant increased prices to consumers. The witness replied that to answer the question he should have the facts.

The senator then emphasized that whereas the traffic managers had told the railroads to reduce rates to retrieve the traffic on short hauls the Pelley proposal proposed increases in long-haul rates as in the nature of an advantage for the major companies.

Chairman O'Mahoney then said: "Would you be willing to express an opinion, without mentioning any other company, how an increase of freight rates would be beneficial to such a company operating in this territory?" Hall replied that he "ought not express such an opinion."

Senator Inquires

Chairman O'Mahoney: "I will tell you why I ask you the question, Mr. Hall: because the testimony has been given here by those who have been criticizing the operation of the oil industry that in the integrated company great profits are made in production, and great profits are made in transportation, and losses are incurred in marketing, and that by reason of the profits which are made in transportation, it is possible for companies like yours to sell to the consumer at a loss, to drive the independent retailer out of business, and thereby interfere with free, private enterprise, small business. Now, with that explanation of the reason for my question, do you care to offer an opinion?"

Mr. Hall: "Mr. Chairman, I am not an economist, I am not a marketer, I am not a general executive, I am a lawyer. I think I would be going far beyond my field to embark on the subject you have opened."

Chairman O'Mahoney: "Mr. Hall, this isn't a question for economists, it is not a question for lawyers, it is not a question for industrial executives or for politicians, if you please. This is a question for common, ordinary citizens. And a lot of these common, ordinary citizens have appeared before this committee with their point of view, and I am asking you for your point of view, as a citizen, not as a lawyer." The witness countered that he would have to have accurate facts.

(Continued on Page 115)

T. N. E. C. Assured Oil Labor Conditions Are Very Good

I THINK it is self-evident that labor conditions in the industry are very good," Isador Lubin, commissioner of labor statistics, declared Wednesday during interrogation of the industry's chief witness on employment and working conditions, H. H. Anderson, vice president, Shell Oil Co., Inc., St. Louis, Mo., by the T.N.E.C.

Mr. Anderson pointed out that much of the employer attitude reflects the natural attitude of executives since "most of the officials came into their present positions through the hard way." i.e., worked up from the ranks.

The discussion brought out that out of 128 refineries operated by 18 companies, 9,054 workers are C.I.O. members and 4,116 A. F. of L. The percentage of organized workers among refinery wage earners increased 2 per cent in the last 4 years, said Mr. Anderson. Unionization results in the refineries of larger oil companies, covering 66,657 wage earners in 128 refineries or about 80 per cent of all wage earners in this branch, were reduced to a charted equation showing 13.6 per cent belonging to C.I.O. unions, 6.1 per cent to A. F. of L. unions, 47.8 per cent to independent unions and 32.5 per cent to no union.

Mr. Anderson said there was a trend to pay more wages to certain employes in the production branch due to the increased number of technical men prorated production requires. The increased hourly rates of pay reflect the greater number now coming within the highly skilled group.

Another trend is the increasing tendency to shift to contract work, even in routine maintenance. Such expenditures are paid through vouchers, not payrolls. Accordingly, government figures erroneously reflect less employment. Whereas in 1929 it was cheaper for companies to do their own refinery construction due to complexities of equipment, the improvement in refining technology has made it possible to contract for a very considerable part of this work.

There are 156,000 workers in the production end, 29,599 in pipe lines, 12,000 in marine service, 98,451 in refining, 124,798 in the wholesale marketing, 402,800 in service stations and 182,000 in outlets where products other than gasoline are marketed.

Interbranch wages-and-hours comparisons as among the refining, production, and pipe-line departments of the larger oil companies were summarized as follows:

Month of May	Weekly earnings			Hourly rates			Hours per week		
	Ref.	Prod.	P.L.	Ref.	Prod.	P.L.	Ref.	Prod.	P.L.
1933	$25.92	$27.25	$27.46	$0.630	$0.544	$0.559	41.2	50.1	49.1
1934	27.14	28.04	27.52	.756	.772	.736	35.9	36.3	36.1
1936	29.39	31.09	30.32	.816	.840	.828	36.0	37.0	36.6
1938	35.48	36.19	35.89	.983	.972	.976	36.8	37.2	36.8

Preliminary Program For A.P.I. Annual Meeting

THE preliminary program for the American Petroleum Institute's twentieth annual meeting, November 13 to 17 in the Stevens Hotel at Chicago, contains an innovation, the convening during the Institute's sessions of an Interstate Conference on Automotive Taxation sponsored by the American Petroleum Industries Committee, bringing to the meeting automotive equipment and tax experts, state officials and members of Petroleum Industries committees from 28 states.

A completely new board is to be elected on the basis of a revised schedule of representation. Eight national officers and 40 members of divisional general committees also are to be elected.

The preliminary program follows:

Monday, November 13

Committee meetings.

9 a.m. Group Session.—American Petroleum Industries Committee, Interstate Conference on Automotive Taxation.

The Road Traveled and the Road Ahead, B. H. Markham.

Current Trends and Probable Future Trends in Taxation, Public Finance, and Expenditures, Dr. Roswell Magill, professor of law, Columbia University.

Highway Program for the United States, Thomas H MacDonald, U. S. Public Roads Administration.

2 p.m. The Gasoline Tax—Its Use and Abuse, Dr. Finla G. Crawford, dean, college of liberal arts, Syracuse University.

Highway Bonds and Their Effect Upon Taxes, Norman S. Taber, consultant on public finance, New York.

Gasoline-Tax Administration, Joseph L. McLaughlin, New Jersey Tax Department.

The Farmer and the Highways, Francis Johnson. Iowa Farm Bureau Federation.

The American Motorist and the Gasoline Tax. Maj. Roy F. Britton, Automobile Club of Missouri.

Tuesday, November 14

Committee meetings all day.

9 a.m. Interstate Conference on Automotive Taxation.

Constitutional Safeguards Against Diversion, Murray D. Van Wagoner, state highway commissioner of Michigan.

Highway Barriers and the Need for Cooperation in Their Removal, Chester H. Gray, National Highway Users Conference.

Problems of Truck Transportation, Ted V. Rodgers. American Trucking Associations, Inc.

The Alcohol-Gasoline Proposal, Conger Reynolds, chairman, committee on motor fuels.

9:30 a.m. Transportation Economics (sponsored by central committee on automotive transportation). Presiding: J. F. Winchester, Standard Oil Co. of New Jersey.

Address: Dawes E. Brisbine, National Highway Users Conference.

Address: Charles J. Yokom, Petroleum Transit Corp., Detroit.

2 p.m. Interstate Conference on Automotive Taxation.

Compulsory Gasoline Grading, Gustav Egloff, Universal Oil Products Co.

Newspapers and Good Public Relations, William L. Ayers, Chicago Journal of Commerce.

Broadcasting Your News, John D. Fitzgerald, Columbia System.

2 p.m. Automotive Transportation.—Symposium on Meters (sponsored by central committee on automotive transportation). Presiding: H. E. Spear, Shell Oil Co., Inc., St. Louis, Mo.

Pros and Cons on Use of Meters on Automotive Equipment in the Delivery of Petroleum Products. Discussion to be led by: Walter W. Brown, Ralph N. Brodie Co., Inc., Oakland, Calif.; L. A. Carlson, Gulf Oil Corp., Pittsburgh, Pa.; R. F. Fike, Mid-Continent Petroleum Corp., Tulsa; Allen A. Floyd, Smith Meter Co., Milwaukee, Wis.; L. M. Goldsmith, Atlantic Refining Co., Philadelphia, Pa.; Frederick B. Hufnagle, Jr., Sun Oil Co., Philadelphia, Pa.; W. H. Marsh, Pittsburgh Equitable Meter Co., Pittsburgh, Pa.; J. F. Winchester, Standard Oil Co. of New Jersey, New York.

2:30 p.m. Board of directors.

Wednesday, November 15

9 a.m. Interstate Conference on Automotive Taxation.

The Need for a United Tax Front in the Petroleum Industry, Russell B. Brown, Independent Petroleum Association of America.

Taxation and the Citizen, Fred A. Eldean, Tax Foundation, New York.

10 a.m. Board of directors.

10:30 a.m. Meeting of board of councillors to nominate members of the board of directors.

2 p.m. General Session:

Presentation of Accident-Prevention Certificate Awards.

Report of board of councillors and election of directors.

President's address: Axtell J. Byles.

Address: Victor H. Scales, American Petroleum Institute.

Address: Joseph E. Pogue, Chase National Bank, New York.

Thursday, November 16

9 a.m. American Petroleum Industries Committee. Round-table discussion.

9:30 a.m. Division of Production. Pipe-Line Transportation Problems (sponsored by the topical committee on pipe-line technology of the central committee on pipe-line transportation). Presiding: Walter F. Rogers, Gulf Oil Corp., Houston, Tex. Papers under consideration by the program committee; speakers later:

Comparison of Tests for Determining Soil-Corrosion Rates.

Use of Inhibitors to Prevent Corrosion in Gasoline Pipe Lines.

Cooperative Problems in Cathodic Protection.

9:30 a.m. Division of Production.

Symposium on Collapsing Pressures and Setting Depths (sponsored by the central committee on drilling and production practice and the engineers' subcommittee on tubular goods). Presiding: B. B. Wescott, Gulf Research & Development Co., Pittsburgh, Pa. Papers under consideration by the program committee; speakers later:

A Rational Expression for the Critical Collapsing Pressure of Pipe Under External Pressure.

Collapse Data on Electric-Welded Pipe.

A New Equation for Determining Collapse Strength.

Combining Hoop and Bending Stresses to Establish Casing Collapse Pressures.

10 a.m. Board of directors. The executive committee will meet immediately following the last session of the board of directors.

10 a.m. Division of Refining.

Fuels and Lubricants:

New Thermofor Kiln and Clay-Regeneration Processes for Maintaining Decolorizing Clays at High Efficiencies, T. P. Simpson and J. W. Payne, Socony-Vacuum Oil Co., Inc., Paulsboro, N. J.

Hypoid-Lubricant Requirements of Cars and Trucks. H. R. Wolf, General Motors Corp., Detroit.

Cylinder Lubrication of High-Speed Diesel Engines as Influenced by Temperature and Combustion Process, A. T. McDonald and L. A. Blanc, Caterpillar Tractor Co., Peoria, Ill.

Diesel-Fuel Specifications, G. C. Wilson, University of Wisconsin.

Discussion by engine manufacturers.

10 a.m. Public Relations (sponsored by the central committee on public relations). Presiding: W. S. S. Rodgers, Texas Co., New York.

The Philosophy of Industrial Relations, H. H. Anderson, Shell Oil Co., Inc., St. Louis, Mo.

Helpful Petroleum, W. N. Humphries, Ohio Oil Co., Findlay, Ohio.

Public Relations in Advertising, H. K. Boice, Benton and Bowles, Inc., New York.

2:30 p.m. General session.

Address: Paul G. Hoffman, Studebaker Corp.

Address: Barclay Acheson, Reader's Digest.

7:30 p.m. Annual dinner.

Friday, November 17

9:30 a.m. Division of Production.

Drilling Practice and Technology (sponsored by the central committee on drilling production practice). Presiding: M. Albertson, Shell Oil Co., Inc., Houston, Tex. Papers under consideration by the program committee; speakers later:

Viscosity Determination of Subsurface Samples.

Partial Volumetric Behavior of the Lighter Hydrocarbons in the Gas Phase.

Results of Pressure Core-Barrel Tests.

American Petroleum Institute-Bureau of Mines Pressure Core-Barrel Tests.

Report of division's nominating committee, John A. Ritter, Sun Oil Co., Dallas, Tex., chairman.

Election of 20 members of the general committee of the Division of Production.

10 a.m. Division of Refining.

Desulfurization and Dehydration:

Petroleum-ization—1940, H. W. Field, Atlantic Refining Co., Philadelphia, Pa.

Hydrocarbon Research at Ohio State University, D. P. Barnard, Standard Oil Co. (Indiana), Whiting, Ind.

Catalytic Desulfurization to Improve Aviation Blending Naphthas, W. A. Schulze and R. C. Alden, Phillips Petroleum Co., Bartlesville, Okla.

Catalytic Dehydrogenation of Gaseous Hydrocarbons, A. V. Grosse and V. N. Ipatieff, Universal Oil Products Co.

Report of division's nominating committee. J. B. Rather, Socony-Vacuum Oil Co., Inc., New York, chairman.

Election of 20 members of the general committee of the Division of Refining.

2 p.m. Division of Production.

Production Practice and Materials (sponsored by the central committee on drilling and production practice). Presiding: P. D. Torrey, Sloan & Zook Co., Inc., Houston, Tex. Papers under consideration by the program committee; speakers later:

Range of Application of Gas-Lift Methods.

The Effect of Well-Bore Diameters as Observed in California Oil-Sand Reservoirs.

Capacity Rating of Roller Bearings.

Protective Coatings.

Immediately following this session, the central committee on drilling and production practice will meet.

2 p.m. Division of Refining.

Alkylation and Catalytic Cracking:

Thermal Alkylation and Neohexane, G. G. Oberfell and F. E. Frey, Phillips Petroleum Co., Bartlesville, Okla.

Sulfuric-Acid Alkylation, Anglo-Iranian Oil Co., Ltd., Shell Development Co., Standard Oil Development Co., and Texas Co.

Catalytic Reforming for Production of Aviation Gasoline, Houdry Process Corp., Philadelphia, Pa.

Catalytic Cracking, Universal Oil Products Co., Chicago.

RAILROAD PROPOSAL

(Continued from Page 114)

Harry T. Klein, vice president and general counsel of Texas Co., introduced his company's file of correspondence relating to the Pelley letter. The general tenor of it was similar to Mr. Hall's testimony that Texas Co. considered the Pelley proposals illegal unless they were approved under the N.R.A. code. Mr. Klein said he had never heard of the proposal since President Rogers of his company wrote to Mr. Pelley on March 24, 1939, stating the company did not consider the suggestions practical and recommending the matter be dropped.

Personal Paragraphs

E. R. RAPHAEL, recently appointed division manager of the Los Angeles, Calif., marketing area of Shell Oil Co., Inc., was formerly manager of Shell's marketing operations in the Oakland district of that state. Mr. Raphael attended the University of California at Berkeley. He joined the Shell organization nearly 20 years ago as a salesman in Oakland. In 1924 he was made assistant district manager in Santa Rosa, Calif.; in 1933, district manager in Sacramento, Calif.; in 1935, division manager in Portland, Ore., and in 1937 he was transferred to the head office in San Francisco for special duty. He was sent in 1938 to Oakland, where he remained until his assignment to the Los Angeles post.

THOMAS WILLIAMS, land man for Indian Territory Illuminating Oil Co., has been transferred from St. Joseph, Mo., to Decatur, Tex.

KEITH M. PYBURN, of Pyburn & Pyburn, Shreveport, La., is teaching a course in oil and gas law at Centenary night school in Shreveport this year.

HENRY A. WYLDE, Los Angeles, Calif., paleontologist, is back at his desk following a voyage from Glasgow, Scotland, where he was doing some work when the war broke out.

E. L. GREEN, supervisor of the Oil and Gas Division offices of the Texas Railroad Commission in Pampa, is recovering from injuries suffered in a recent automobile accident.

FRANK A. HOWARD, president of Standard Oil Development Co., New York, returned to the United States October 10 aboard the Yankee Clipper. Mr. Howard had been abroad since the middle of August, traveling in England and France.

ROGER B. OWINGS, Fort Worth, Tex., operator, visited New York last week, accompanied by Mrs. Owings. Return to Texas was made by way of Philadelphia, where the two joined friends attending the T.C.U.-Temple football game October 14.

G. L. NEELY, Standard Oil Co. of California, is the nominee for councilor of the Society of Automotive Engineers, whose members now are conducting a mail election of officers for 1940. NEIL MacCOULL, of Texas Co., and G. W. LAURIE, of Atlantic Refining Co., are nominees for vice president.

PAT DUNCAN, chief scout for Magnolia Petroleum Co., Dallas, Tex., was elected president at the first meeting of the Magnolia Young Men's Club. WILLIAM WINCKLER, geological department, was elected vice president, and W. C. (BILLY) CUBERLEY, scouting department, secretary-treasurer.

R. T. JAMESON, formerly district land agent for Shell Oil Co., Inc., in Shreveport, La., has succeeded W. E. SCOTT, resigned, in the Baton Rouge, La., office. E. J. McLAIN succeeds him.

E. FLOYD MILLER, of Oliphant Oil Co., was elected president of the Shreveport Geological Society at its first meeting of the season. WELDON E. CARTWRIGHT, Tide Water Oil Co., was chosen vice president; J. D. AIMER, Arkansas Fuel Oil Co., secretary-treasurer, and ANNA MINKOVSKY, Shell Oil Co., Inc., historian.

W. J. LARSON, superintendent of production for Union Oil Co. of California in Bakersfield, Calif., has been moved to Santa Fe Springs to take the place of HARRY BRETT, transferred to the coast division as superintendent of production. J. D. ROBINSON, production foreman at Damonguez, succeeds Mr. Larson.

O. F. CAMPBELL, combustion engineer for Sinclair Refining Co., will speak on "Economies of Efficient Combustion Control" at the October meetings of the Department of Manufacture of the National Petroleum Association. Meetings will be held October 25 in Warren, Pa., in charge of MacLEAN HUSTON, United Refining Co.; October 26 in Oil City, Pa., in charge of DR. F. E. WILLIAMS, Quaker State Oil Refining Corp., and October 27 in Butler, Pa., in charge of GEORGE M. KIRKWOOD, Pennsylvania Refining Co.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

The Santa Fe Railroad has equipped nearly all its locomotives with oil burners, and is a very large buyer of fuel oil.

Lakeview Oil Co.'s No. 2, gusher in the Midway field in California, has been flowing many months and is still producing 17,000 bbl. per day. In addition to the large quantity of crude the company has sold from the well, it has over 6,000,000 bbl. of crude in sumps and pits, all of it having come from this well.

W. H. D. Chapin, 67, pioneer producer in the eastern fields, dies at Parkersburg, W. Va.

20 YEARS AGO

B. F. Werner, 81, who started in the oil business near Titusville, Pa., in 1860, dies in Hartford City, Ind.

Kemp, Munger, and Allen open a pool 5 miles south of the Iowa Park pool in Wichita County, Texas. It will probably be known as the K.M.A. pool. The pay lies at 1,760 ft.

George Chandler, field superintendent for the Associated Oil Co. in the Red Desert, Wyoming, region, perishes in a blizzard on October 4 and the body was not found for nearly 2 weeks.

Stockholders of the H. F. Wilcox Oil & Gas Co. vote to increase the capital stock from $2,000,000 to $20,000,000.

William G. Skelly of Tulsa has completed the organization of the Skelly Oil Co., capital $15,000,000. The stock issue was oversubscribed $5,000,000.

10 YEARS AGO

Pure Oil Co. opens the Van pool in Van Zandt County, Texas.

Mid-Kansas Oil & Gas Co. has a well on its A-30 lease on the Yates ranch in Pecos County, Texas, credited with a potential of 204,681 bbl. per day.

SETH W. HOLMES, subsurface engineer for Shell Oil Co., Inc., Wichita Falls, Tex., has been taking his vacation in California.

B. ORCHARD LISLE, consulting petroleum technologist and publicist, has established an office at 1472 Broadway, New York.

RAY SHAFFER, JR., petroleum engineer with Cities Service Oil Co., is now stationed in Gladewater, Tex., to which point he was transferred from Bartlesville, Okla.

WILLIAM RANDALL, state field manager of Illinois Refining Co., is opening a new company office in Yazoo City, Miss., to take care of operations in the new Tinsley field.

L. R. McFARLAND, geologist for Magnolia Petroleum Co., has been transferred from Shreveport, La., to a newly opened office in Jackson, Miss. J. A. SELBY, land man, has been transferred to the new office from New Orleans, La.

MAURICE MACHRIS, of Wilshire Oil Co., who was in New York several weeks on a pleasure and business trip, has returned to his office at Norwalk, Calif., where the company has a modern refinery with cracking units and a tank farm.

E. W. SIMS, Ponca City, Okla., superintendent of Continental Oil Co.'s telephone and telegraph department and president of the Petroleum Industry Electrical Association, was the speaker at the monthly meeting of the Petroleum Electric Club last week in Houston, Tex.

G. R. KENNEDY, scout for Magnolia Pipe Line Co. in East Texas, has resigned to enter the oil business for himself. He is succeeded in East Texas by R. L. DENTON, of the Kilgore office.

GROVER REES, general counsel of Mene Grande Oil Co., Maracaibo, and HARRY DAVIS, vice president of Venezuela Gulf Oil Co., Caracas, returned to Venezuela aboard the Santa Elena, which sailed from New York October 13.

K. A. SCHMIDT, district geologist with Tide Water Oil Co. in Shreveport, La., has been transferred to the company's Houston, Tex., office. WELDON A. CARTWRIGHT, geologist in the Shreveport office, has been placed in charge.

F. W. ALCORN, Pennzoil Co.; R. V. BOWER, Quaker State Oil Refining Corp.; J. R. EDMONSTON, Gulf Oil Corp., and C. A. MILLER, United Refining Co., will address the National Petroleum Association's Department of Taxation meeting in Oil City, October 25.

JAMES L. GREENE, independent oil operator of Midland, Tex., was elected president of the Permian Basin Association, succeeding HARRY ADAMS, Midland, who resigned owing to ill health. Mr. Adams was elected at the organization meeting in Colorado City, August 25.

E. J. HENRY, vice president of Atlantic Refining Co., Philadelphia, Pa., has been elected president of Atlantic Pipe Line Co., filling the position formerly occupied by J. W. Van Dyke, who died recently. ROBERT C. TUTTLE, vice president and a director of Atlantic Refining, succeeds Mr. Van Dyke as president of Keystone Pipe Line Co. and Buffalo Pipe Line Corp., subsidiaries of Atlantic.

Munday, Not Monday

Dr. F. J. Sanders, recently named superintendent of Standard Oil Co. of Ohio's refinery in Toledo, Ohio, sometimes has had a little difficulty in making it clear that he was born, not on Monday, but in Munday, a town in Texas, to which the latest census accorded a teeming population of 1,318. He was reared on a farm near Haskell, in that state, and after acquiring an elementary education he entered Texas Technological College the year it opened. He was a member of that institution's first graduating class, receiving a bachelor of science degree in mechanical engineering, with a chemical option. His doctor's degree in chemical engineering was conferred by Yale University.

DR. F. J. SANDERS

Upon finishing school the young man worked a year and a half for Calco Chemical Co. Then, in 1934 and still in his twenties, he joined Standard of Ohio in Cleveland, and he has been in its service since. He and J. L. Collins organized the technical service division, which now embraces a staff of 18 men, whose full time is devoted to improvement of processes and equipment. Dr. Sanders was made director of the division, and he was serving in that capacity when promoted to superintendent of the Toledo plant.

While all this was going on Dr. Sanders learned to play golf and in 1930 he married a Texas girl. By his own admission he plays a poor golf game, but he keeps at it for the exercise. His real fun, he says, he gets out of working around an oil refinery.

L. H. CEDAR PUCKETT, oil operator of Amarillo, Tex., has returned from a trip through the Illinois and Indiana oil fields. He took in the two games of the World Series in Cincinnati, Ohio.

FRANK M. JACOBSON, of Dallas, Tex., manager of Buffalo Oil Co., was in New York last week with Mrs. Jacobson on a business and pleasure trip. On the way to New York they stopped in Chicago and Buffalo.

L. W. CALAHAN, geologist with Texas Co. in Shreveport, La., has been transferred to a new office opened in New Iberia, La. M. N. BROUGHTON, geologist in the Shreveport office, has been transferred to Houma, La.

W. J. CHRISTIAN, former head of the Kilgore office of the Texas Railroad Commission, has been named chief administration officer for the state, in which position he will supervise commission work in all fields. Succeeding him in the Kilgore office is ALBERT CARTER.

GLENN H. McCARTHY, Houston, Tex., independent oil operator and discoverer of the Anchor field in Brazoria County, Texas, was the honor guest at a barbecue given by the Angleton Junior Chamber of Commerce and various civic organizations in celebration of the field's opening.

C. E. MOTT, formerly assistant to the president, has been appointed vice president of Shell Oil Co., Inc. He will maintain headquarters in San Francisco, and continue to work in Pacific Coast territory. During the World War he served oversea as a flight lieutenant in the Royal Air Force in the Balkans, Egypt, and France. He went to the Pacific Coast for service with Shell in 1936.

DR. ARMSTRONG PRICE, of Corpus Christi, Tex., will be the leader of a field trip to be made by members of the South Texas Geological Society. The trip will begin at Laredo Friday morning, October 20. Oil fields in Webb and Starr counties will be visited. The society's annual convention will open October 21 in Brownsville, closing the next day.

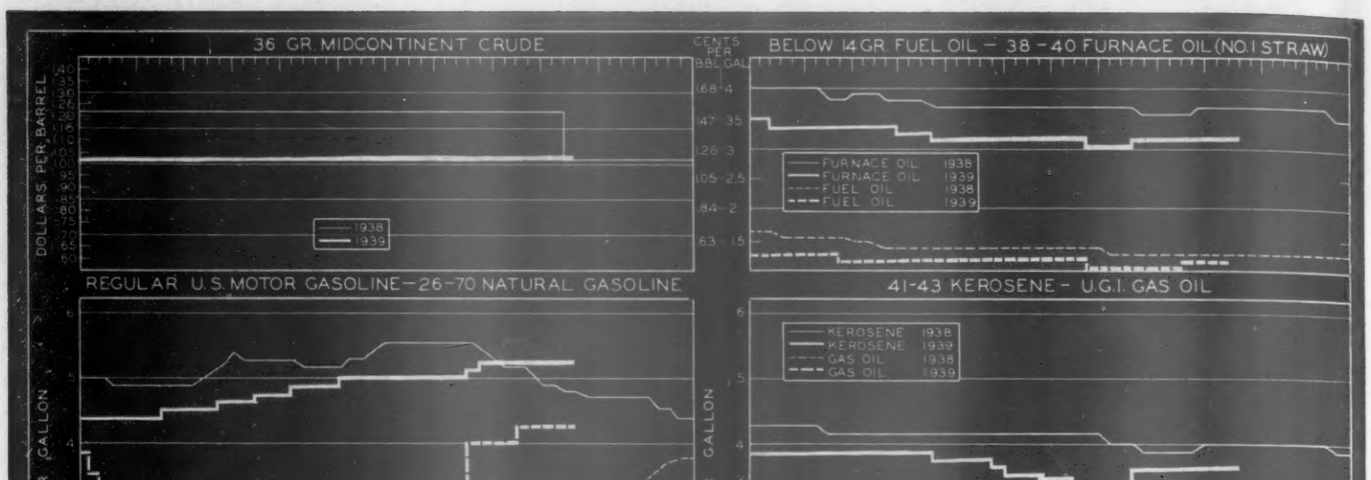
Shifts: NORMAN CRAWFORD, engineer Union Oil Co. of California, gas department, from Beverly Hills, Calif., to Seattle, Wash.; J. C. MAY, geologist Tide Water Associated Oil Co., from Santa Barbara, Calif., to Oildale, Calif.; JESSE H. RUSSELL, engineer Oklahoma Pipe Line Co., from Cromwell, Okla., to Muse, Okla.; THOMAS W. KEATING, engineer Stanolind Oil & Gas Co., from South Houston, Tex., to Hackberry, La.; MAX LYON, engineer Carter Oil Co., from Altamont, Ill., to Effingham, Ill.; LUKE SIMS, president Fields & Sims Co., Inc., from Birmingham, Mich., to Fort Worth, Tex.; T. T. HAWKSWORTH, president Michigan Devonian Petroleum Co., from Ruart, Va., to Grand Rapids, Mich.; E. L. McMILLEN, superintendent Sinclair Prairie Oil Co., from Breckenridge, Tex., to Odessa, Tex.; EDWIN MEREDITH, Meredith Oil Co., from Grand Rapids, Mich., to Saginaw, Mich.; W. T. McKENNA, president McKenna Oil Corp., from Saginaw, Mich., to Grand Rapids, Mich.

JOHN A. RITTER, Sun Oil Co., Dallas, Tex., is chairman of the newly appointed American Petroleum Institute's Division of Production nominating committee. The other members are: E. L. ADAMS, General Petroleum Corp., Los Angeles, Calif.; J. C. ASKAM, Ohio Oil Co., Findlay, Ohio; J. A. BERMINGHAM, Texas Co., Houston, Tex.; E. H. BLUM, Atlantic Refining Co., Dallas; P. H. BOHART, Gulf Refining Co., Tulsa; WARNER CLARK, Standard Oil Co. of California, San Francisco; J. S. FREEMAN, Skelly Oil Co., Tulsa; W. E. GILBERT, Shell Oil Co., Inc., Los Angeles; D. R. KNOWLTON, Phillips Petroleum Co., Bartlesville, Okla.; CHRISTY PAYNE, JR., Peoples Natural Gas Co., Pittsburgh, Pa.; H. C. PYLE, Union Oil Co. of California, Los Angeles; W. W. SCOTT, Humble Oil & Refining Co., Houston; C. S. WARREN, Cities Service Oil Co., Bartlesville; FRED WOOD, Standard Oil Co. (Indiana), Chicago.

WILLIAM SCHMITTOU, petroleum engineer and chief driller for Burmah Oil Co., and HARRY STUBBS, drilling superintendent for Anglo-Ecuadorian Oilfields, Ltd., are in California. The latter planned an early departure for Ecuador.

JOHN F. ECKEL, well-known physical metallurgist, has been made assistant professor of metallurgy at Purdue University. E. B. ECKEL, formerly associate geologist with the U. S. Geological Survey, has been assigned to a study of quicksilver deposits of the San Simeon and Adelaida quadrangles in California.

L. MOSELEY MOFFITT, of Triangle Drilling Co., Shreveport, La., was reelected for his fourth term as president of the Louisiana-Arkansas division of the Mid-Continent Oil and Gas Association at the annual meeting last week. Supporting him are D. W. HARRIS, Arkansas Fuel Oil Co.; J. S. HASSON, Ohio Oil Co.; CHARLES G. LASKEY, Belchic & Laskey; J. R. McWILLIAMS, Standard Oil Co. of Louisiana, and C. R. MINOR, Gulf Refining Co., vice presidents. ARTHUR R. CAMPBELL was reelected secretary-treasurer.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Wax in Group 3 Area Breaks Record of 14 Years; Lubricants Climbing

By T. F. SMILEY

A RECORD of 14 years in the Group 3 refinery market was broken in the past week when white crude scale wax was sold at 5¼ cents a pound, and some manufacturers were quoting 5½ cents. In 1925 sales of that grade were made at 5.539 cents, and the average for the year was 5.059 cents. One sales manager this week said inquiries were so urgent that he would have had no trouble in booking for November delivery at 5¼ cents, and probably at 5½. "It isn't a question of price," he added. "It's a question of being able to fill orders at any price." Export demand was causing the strength in this division of the market.

Lubricants Still Climbing

Lubricating oils were gaining fresh momentum and going to new highs. It often happens in the refinery market that when quotations on a commodity rise sharply inquiries fall off. In the case of lubricants, which have been putting on a remarkable performance in both the interior territory and the East, buyers have not been discouraged. Notwithstanding soaring prices, floods of inquiries, largely from abroad, are being received. Most of the inquiries reaching Mid-Continent refiners are for bright stocks. Requirements indicated by communications from buyers are beyond the present production capacity of refiners. Even before the outbreak of the European war major refining companies, supposedly foreseeing the course of events, bought lubricants heavily in eastern areas and the Mid-Continent. Their action went far toward cleaning up inventories and bringing about the present tight market.

Although various factors operated to dampen the gasoline market, refiners for the most part were in a cheerful mood, and they characterized the outlook as encouraging. As against overheavy stocks, excessive runs to stills, seasonal decline in consumption, competition from the cheap Illinois product, and congested conditions at the Gulf, they expressed confidence that ocean transportation soon would be restored, breaking the jam at Gulf ports, and they pointed to the increasingly tight crude market as of highly favorable significance. Market observers declared there was less underpriced crude available than at any other time since the high days of the East Texas field. Several refiners complained in the past week of difficulty in getting needed crude.

"Why do you want crude to make gasoline when gasoline stocks already are too big?" one of them was asked.

"Anticipation," was the laconic reply. "And anyway we used up all our crude reserves during the well shutdown last August."

Refined Oil Market Barometer

Lubricating oils and wax continue to climb. Congested conditions at Gulf ports grow more serious as a result of continued failure to restore export shipping schedules. Possibility of sudden cessation of the war is a major cause of the softer tone in gasoline and to a smaller degree in the naturals. Heavy industrial fuels and heating oils gaining steadily.

MID-CONTINENT. Lubricants and wax scarce and higher. Gasoline lacks life.

EAST COAST. Light fuels up. Gasoline steady. Wax tightening. Kerosene firmer.

GULF COAST. Gasoline offerings increase and market weaker. Kerosene steady.

CALIFORNIA. Lubricants slightly firmer. Fuel oils still moving. Market quiet.

PENNSYLVANIA. Lubricating oils tight and prices rising. Wax extremely strong.

CHICAGO. Heating-oil demand brisk. Gasoline holding well. Heavy industrial fuel strong.

Gulf Conditions Hurt Naturals

Natural gasoline, like the refined product, was feeling the effects of dislocated shipping service. Clogged conditions at the Gulf hampered movement from plants. This obstruction cannot be removed until tankers in trans-Atlantic service are able to come and go with some degree of regularity. Shipments from the field cannot be accepted at the Gulf any faster than the terminals are relieved by outgoing cargoes.

One export inquiry for a full cargo of natural gasoline was received in the past week. Inquiries for parcels for November delivery were also in hand. Some manufacturers were disposed to believe these inquiries might mean a solution of deranged ocean transportation was in sight. Incidentally, a cable inquiry from Rotterdam, Holland, for 75,000 bbl. of gasoline, kerosene, and lubricants was received in the past week by the Gulf Coast Refiners Association.

Although quotations for heating oils and kerosene underwent no change, market tone was stronger. Demand was stiffening and shipments were moving faster. Inquiries were more plentiful, indicating that jobbers will increase their buying soon. Movement of tractor fuels was fair.

Prices for Light Fuel Oil, Lubes and Gasoline Rise in East

By H. STANLEY NORMAN

NEW YORK, Oct. 16.—Advances in the prices of light fuel oil, wax, and Pennsylvania lubricating oils featured last week's market activity along the North Atlantic seacoast. Scattered advances of a fraction of a cent were made in the gasoline tank-wagon prices in parts of northern New York and in some of the New England states.

Standard Oil Co. of New Jersey raised the tank-wagon kerosene price in New Jersey .35 cent per gallon, making the new price at Atlantic City and Newark 7.6 cents per gallon. The company also advanced No. 1, No. 2, and No. 4 fuel oil a quarter of a cent to the tank-wagon trade at Baltimore and Washington, D. C. The New Jersey kerosene advance was made October 12 and the Baltimore and Washington prices on light fuels were marked up October 9. The new price at Baltimore is 7 cents for No. 1; 6.5 cents for No. 2, and 6 cents for No. 4 oil. At Washington, the new prices are 7.25 cents for No. 1 oil; 6.75 cents for No. 2, and 6.75 cents for No. 4.

After record-breaking high temperatures for the first 2 days of last week, normal fall thermometer readings returned and stimulated the demand for domestic heating oils. At the end of last week several suppliers in this section were asking 4½ cents for No. 2 fuel oil in barges and 4⅝ cents and up in tank cars. Reports in the trade indicate that early winter fuel-oil demand will surpass all previous records. Discounting some of the buying which is believed to be the result of accumulation of stocks against further price advances, the recent activity indicates that the industry will be called upon to supply a higher percentage of increase in light fuels than in other products. The heavy fuel-oil market remains firm with Bunker C fuel oil quoted in New York Harbor at $1.15 per barrel. Many traders report difficulty in lining up stocks on the Gulf Coast where suppliers are reported unwilling to accept much forward business because of uncertainties concerning European demand.

The high side of the market range for most Pennsylvania bright stocks and neutral oils was pushed up from 2 to 4 cents per gallon last week, and the demand has shown no tendency to slacken either from domestic or foreign customers. Practically every general cargo vessel leaving New York for Europe is currently carrying from a few to several thousand barrels of lubricating oil. Six grain vessels sailing from New York last week for ports of belligerent and neutral European countries carried a total of 4,692 bbl. of lubricating oil ranging from 23 to 2,694 bbl. per ship. Neutral oils of 25 pour-point test, 200 viscosity, is generally held for a minimum of 24 cents in the domestic market with a top of 30 cents quoted. The same oil for export is offered in limited quantities at 40 to 42 cents per gallon. On the 150 viscosity neutrals the prices generally quoted by suppliers range from 22 cents as the low on 25 pour test to 31½ cents for zero oil.

Pennsylvania refiners remain unable to supply freely the domestic and export demand. Shipments to domestic contract customers are being made sparingly, although emergency efforts to increase producing capacity have been made at several plants. The quoted market for Pennsylvania lubricants might well be considered as an effort to discourage buying, and some plants are deliberately quoting substantially above the level of recent sales to protect their stocks and productive capacity for contract outlets without an outright refusal to consider outside business.

Wax prices have made another substantial advance, with sales at New York reported ranging from 4.55 to 5 cents for the scale grades. The same prices prevail for export business which is said to be at a substantially higher level since declaration of war in Europe.

Prices of 6¾ to 7 cents per gallon for 65-octane gasoline are reported firm in New York and other northeastern seaboard terminals. Sufficient material is available at the lower of the two figures to meet current spot demand, although the willingness to shade quotations normally encountered at this season of the year appears to be absent at present.

Kerosene is held at a range of 4⅞ to 5⅛ cents in tank cars and the market is showing a tendency to move forward. The tank-wagon advance in New Jersey was the first tangible evidence of higher kerosene prices in this section, although refiners and terminal suppliers have been edging the quotations upward for 10 days. The kerosene consumption has been reported particularly heavy from the New England section.

Gulf Coast Markets

HOUSTON, Tex., Oct. 16.—Continued lack of export demand and restricted movements and backing up of material resulted in further definite softening of motor fuels at Gulf Coast refineries the past week. Other products, except lubricating oils, although not available for early shipment, were slightly easier for future commitment. Coastal neutrals continued very scarce, and in good demand, with sellers giving notice that all grades will advance a half cent November 3 for contract purchases.

Sellers still are attempting to hold quotations on motor fuel, and actual prices have shown a tendency to level off following the shading of the past 2 weeks. However, stocks, both of the major and independent refiners, have been increasing materially, not only because of retarded movement and sales but also because of increased crude runs.

Runs to stills apparently are being boosted as rapidly as supplies of crude are made available. Independent refiners in several instances, as well as a few major companies on the Texas coast, still are having difficulty in obtaining crude but are making arrangements to fill their needs from coastal Louisiana. Crude particularly in demand, however, is of types suitable for manufacture of low cold-test gas oil and fuel oils.

Diesel index oils and fuel oils continue strong due to supporting domestic industrial demand in the East, and are not readily obtainable, but, as with motor fuels, there has been some backing up of material due to difficulties of obtaining tankers and high tanker rates, and with disappointing export movement, these products appear to be slightly easier. Sellers, however, do not anticipate any sagging with renewed seasonal demand in the making, as buyers have been inclined not to stock up too greatly on existing high markets and may be forced to buy on much larger scales shortly to meet requirements.

Advances to be made in contract prices for lubricating oils November 3 are due to inspire a rush in moving out these products before that time. With neutrals already scarce, sellers are not expected to be in a position to take on any new business except for future delivery at still higher prices.

A. P. I. Weekly Refinery Statistics

Week Ending October 14, 1939

	Capacity reporting (per cent)	Daily crude runs (bbl.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	546,000	18,465,000	12,836,000
Appalachian	85.9	115,000	2,470,000	593,000
Indiana, Illinois, and Kentucky	90.2	543,000	11,061,000	6,824,000
Oklahoma, Kansas, and Missouri	81.6	270,000	5,859,000	4,572,000
Inland Texas	50.3	113,000	1,497,000	2,295,000
Texas Gulf	90.0	827,000	8,945,000	12,851,000
Lousiana Gulf	97.8	161,000	2,369,000	2,862,000
North Louisiana and Arkansas	55.0	54,000	455,000	836,000
Rocky Mountains	54.2	47,000	1,022,000	579,000
California	90.0	566,000	14,120,000	92,929,000
Total reported	86.2	3,242,000	66,263,000	137,177,000
Estimated unreported	.....	358,000	5,000,000	3,240,000
*Estimated total	.....	3,600,000	71,263,000	140,417,000
*Estimated total previous week	.....	3,505,000	71,152,000	139,698,000
*October 15, 1938	.....	3,251,000	69,172,000	152,290,000

*Bureau of Mines, currently estimated.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATE)

Week ending October 7, 1939	231,564,000 barrels
Week ending September 30, 1939	233,023,000 barrels
Week ending October 8, 1938	279,007,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of October 17, 1939

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline			Kero.
	Tank wag.	Dlr.	Inc. tax	tank wag.
Chicago, Ill.	15.1	13.1	4.0	10.0
Decatur	15.1	12.1	4.0	8.5
Joliet	15.1	13.6	4.0	10.0
Peoria	15.1	13.6	4.0	10.0
Quincy	14.9	13.4	4.0	9.8
Davenport, Ia.	15.1	13.6	4.0	‡10.0
Des Moines	14.9	13.4	4.0	‡9.8
Mason City	15.3	13.8	4.0	‡10.2
Duluth, Minn.	16.9	15.4	5.0	10.8
Mankato	16.5	15.0	5.0	9.4
Minneapolis	16.5	15.0	5.0	10.4
LaCrosse, Wis.	16.5	15.0	5.0	10.4
Green Bay	16.9	15.4	5.0	10.0
Milwaukee	16.2	14.8	5.0	10.2
Detroit, Mich.	13.6	12.1	4.0	7.6
Grand Rapids	13.5	12.0	4.0	9.7
Saginaw	14.8	13.3	4.0	9.3
Evansville, Ind.	16.6	15.1	5.0	†10.5
Indianapolis	16.8	15.3	5.0	†10.7
South Bend	16.8	15.3	5.0	†10.0
Fargo, N. D.	17.7	16.2	5.0	11.6
Huron, S. D.	17.0	15.5	5.0	10.9
Kans. City, Mo.*	14.4	12.9	4.0	8.0
St. Louis*	14.7	13.2	4.0	8.0
St. Joseph	14.4	12.9	4.0	7.9
Wichita, Kans.	13.3	10.6	4.0	7.4

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gal. or more, 1.5 cents off; minimum delivery 25 gal.

Stanolex Fuel Oil in Chicago

Effective September 18, 1939, f.o.b. Chicago tank-wagon prices: Standard range oil, 1-99 gal., 9 cents; 100-149 gal., 8 cents; 150 gal. and over, 7.5 cents. Stanolex fuel oil No. 1, 1-149 gal., 8.25 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex furnace oil, 1-149 gal., 8.25 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex Grade A, 1-399 gal., 5.25 cents; 400 gal. and over, 4.25 cents. Stanolex Grade B, 1-799 gal., 5.25 cents; 800 gal. and over, 4.25 cents. Stanolex Grade C, 1-999 gal., 4.5 cents; 1,000 gal. and over, 3.5 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Tank-wag. cons'r.	Dlr. vided	Inc. tax	Kero. tank wag.
Ohio points	16.0	15.0	5.0	*13.0

*Includes state tax of 1 cent.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline			
	Cons'r. tank car	Dlr. tank wag.	Inc. tax	Kero. tank wag.
Atl'tic City, N. J.	11.6	12.7	4.0	7.60
Newark	11.6	12.7	4.0	7.60
Annapolis, Md.	13.35	14.35	5.0	9.5
Baltimore	12.75	13.75	5.0	7.0
Cumberland	14.15	16.15	5.0	10.0
Wash'gton, D. C.	11.00	12.0	3.0	9.5
Danville, Va.	14.95	17.45	6.0	12.9
Norfolk	13.75	16.25	6.0	8.5
Petersburg	14.05	16.55	6.0	11.7
Richmond	14.05	16.55	6.0	10.7
Roanoke	15.25	17.75	6.0	11.0
Charles'n, W. Va.	14.55	17.05	6.0	12.6
Parkersburg	13.85	15.35	6.0	11.2
Wheeling	14.85	16.75	6.0	12.2
Charlotte, N. C.	16.90	18.40	7.0	11.8
Hickory	17.45	18.95	7.0	12.3
Mt. Airy	17.30	18.80	7.0	12.2
Raleigh	16.65	18.15	7.0	11.5
Salisbury	16.95	18.45	7.0	11.9
Charleston, S. C.	14.75	17.25	7.0	10.6
Columbia	15.60	18.10	7.0	11.5
Spartanburg	16.30	18.80	7.0	12.2

Price basis to Esselene undivided dealers: Dealer tank-wagon price less 0.5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gallons or more, consumer tank-wagon price. Single deliveries of less than 50 gallons, 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less .5 cent per gallon. The above policy also applies in South Carolina effective January 23, 1939.

Discounts for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline			Kero.
	Cons'r. tank-wag.	Net dlr.	Inc. tax	tank-wag.
Atlanta, Ga.	21.0	18.0	7.0	10.0
Augusta	20.5	17.5	7.0	8.5
Macon	21.0	18.0	7.0	10.5
Savannah	19.5	16.5	7.0	9.0
Birmingham, Ala.	21.5	18.5	8.0	9.0
Mobile	21.5	18.5	9.0	9.0
Montgomery	22.5	19.5	9.0	11.0
Jackson, Miss.	19.5	16.5	7.0	10.0
Vicksburg	19.5	16.5	7.0	9.5
Jacksonville, Fla.	19.0	16.0	8.0	8.5
Miami	18.5	15.5	8.0	8.5
Pensacola	21.5	18.5	9.0	8.5
Tampa	20.0	17.0	8.0	7.0
Lexington, Ky.	19.5	16.5	6.0	10.0
Covington	18.0	15.0	6.0	9.5
Louisville	18.5	15.5	6.0	9.0
Paducah	18.5	15.5	6.0	9.0

Price basis to tank-wagon consumers: Effective January 4, 1937; 3 cents per gallon below tank-wagon price.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent. All are included in the table.

Pennsylvania and Delaware

ATLANTIC REFINING CO.

	Gasoline			Kero.
	Cons. tank-car	Dlr. tank-wag.	Inc. tax	tank-wag.
Philadelphia, Pa.	12.0	13.5	5.0	10.0
Pittsburgh	13.0	14.5	5.0	10.5
Allentown	12.5	14.0	5.0	10.5
Erie	13.0	14.5	5.0	10.0
Scranton*	13.0	14.5	5.0	10.5
Altoona	13.0	15.0	5.0	10.5
Dover, Del.		14.0	5.0	10.5
Wilmington		13.5	5.0	9.75

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon.

*Voluntary discount of 1 cent allowed to dealers only.

Discount on kerosene, 2 cents per gallon off tank-wagon price on tank-wagon deliveries of 25 gal. or more at one time.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline			Kero.
	Cons. tank-car	Dlr. tank-wag.	Inc. tax	tank-wag.
Albany	12.3	14.6	5.0	7.80
*Met. N. Y.:				
Manhat., Bronx	12.4	13.4	5.0	8.00
Queens, Br'klyn	12.4	13.4	5.0	8.00
Staten Island	12.4	13.4	5.0	8.00
Buffalo	13.1	14.5	5.0	7.70
Rochester	13.3	14.0	5.0	8.30
Syracuse	12.9	14.5	5.0	8.30
Boston	11.3	13.0	4.0	8.00
Portland, Me.	12.3	14.3	5.0	8.00
Manchester, N. H.	13.0	15.0	5.0	8.40
Burlington, Vt.	12.9	14.5	5.0	8.20
Springfield, Mass.	12.0	13.5	4.0	8.20
Worcester	11.9	13.5	4.0	8.20
Hartford, Conn.	11.7	13.3	4.0	7.90
New Haven	11.6	12.8	4.0	8.00
Providence, R. I.	11.3	13.3	4.0	8.00

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Effective February 15, 1939, the company changed its commercial consumer policy in New York and New England points for tank-wagon delivery to the following: Annual purchases 10,000 gallons and under, tankcar price plus 2 cents per gallon; annual purchases 10,000 gallons up to 50,000 gallons, tankcar price plus 1.5 cents per gallon; annual purchases 50,000 to 200,000 gallons, tankcar price plus 1 cent per gallon; annual purchases 200,000 gallons and over, tankcar price plus one-half cent per gallon. Private consumers pay undivided dealer price, plus 2 cents per gallon. Private consumers receiving full compartment deliveries of at least 200 gallons receive a discount of one-half cent per gallon.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline			Kero.
	Tank-truck	Serv. sta.	Inc. tax	tank-wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	20.0	21.0	6.0	*17.5
Reno, Nev.	20.5	21.5	5.0	13.5
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	†13.75
Spokane	21.5	22.5	6.0	†16.75
Tacoma	20.0	21.0	6.0	†13.75

*Includes 5-cent state tax. †Includes .25-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

March 18, 1939, split dealer discount was canceled.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline			Kero.
	Tank-wag.	Dlr.	Incl. tax	tank-wag.
Denver, Colo.	15.5		5.0	11.5
Grand Junction	18.5		5.0	15.0
Pueblo	16.0		5.0	9.0
Casper, Wyo.	17.5		5.0	11.5
Cheyenne	15.5		5.0	13.0
Billings, Mont.	18.5		6.0	13.0
Butte	20.0		6.0	15.5
Great Falls	19.5		6.0	15.5
Helena	20.5		6.0	15.5
Salt Lake, Utah	17.5	17.5	5.0	16.0
Boise, Idaho	20.6	20.6	6.0	18.0
Twin Falls	21.1	21.1	6.0	18.0
Albu'que, N. M.	17.0	17.0	6.5	10.0
Roswell	15.5	15.5	6.5	8.0
Santa Fe	17.5	17.5	6.5	10.0

*Includes city tax of .5 cent. †Includes state tax of 1 mill.

Tank-wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline			Kero.
	Cons. tank-car	Dlr. tank-wag.	Inc. tax	tank-wag.
New Orleans, La.	15.25	17.75	8.0	†11.0
Baton Rouge	15.25	17.75	8.0	‡10.5
Alexandria	15.25	17.75	8.0	‡12.5
Lafayette	15.00	18.00	8.0	‡11.0
Lake Charles	15.25	17.75	8.0	‡12.5
Shreveport	14.00	16.50	8.0	‡11.0
Knoxville, Tenn.	18.50	21.00	8.0	14.5
Memphis	16.50	19.00	8.0	11.0
Chattanooga	18.00	20.00	8.0	12.0
Nashville	17.50	20.00	8.0	11.0
Bristol	18.75	20.00	8.0	13.0

Esselene at dealer price less .5 cent per gallon to undivided dealers.

†Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less 0.5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gal., consumer tank car plus 2 cents per gallon; 50 to 199 gal., consumer tank car plus 1 cent per gallon; 200 gal. and over, consumer tank car plus 0.5 cent per gallon.

Nebraska

STANDARD OIL CO. (NEBRASKA)

	Gasoline			Kero.
	Tank wag.	Dlr.	Inc. tax	tank wag.
Omaha	16.9	15.4	6.0	9.5
McCook	17.0	16.2	6.0	9.0
Norfolk	17.3	15.8	6.0	9.5
North Platte	17.8	16.3	6.0	10.7
Scottsbluff	18.5	15.5	6.0	11.4

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline			Kero.
	Tnk.-wg. dlr.	Includes tax		tank wag.
Texarkana Ark.	14.0	5.0		8.0
Fort Smith	14.5	5.0		7.5
Little Rock	17.25	7.5		8.0
Muskogee, Okla.	13.0	5.0		7.0
Oklahoma City	12.0	5.0		6.5
Tulsa	13.0	5.0		7.0

The tank-wagon price is the price to all classes of trade.

Texas

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank wag.
Dallas, Tex.	14.0	18.0	5.0	7.0
Fort Worth	15.0	19.0	5.0	8.0
Houston	14.0	18.0	5.0	8.0
San Antonio	14.0	18.0	5.0	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gal. lots if covered by contract.

Canada*

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank wag.	Inc. tax	Kero tank wag.
Halifax, N. S.	24.0	10.0	18.0
St. John, N. B.	24.0	10.0	18.0
Montreal, Que.	22.5	8.0	15.6
Toronto, Ont.	23.5	8.0	16.6
Hamilton, Ont.	23.5	8.0	16.0
Winnipeg, Man.	26.5	7.0	20.5
Brandon, Man.	28.0	7.0	22.0
Regina, Sask.	26.0	7.0	22.0
Saskatoon, Sask.	28.3	7.0	24.9
Edmonton, Alta.	19.4	7.0	21.4
Calgary, Alta.	23.5	7.0	19.0
Vancouver, B. C.	23.0	7.0	23.0

Tank-Wagon Changes

Standard Oil Co. (Kentucky) October 4 reduced consumer tank-wagon and net dealer gasoline .5 cent in Savannah and October 9 restored previous prices; October 2, reduced consumer tank-wagon and net dealer gasoline 1.5 cents in Miami; October 5, reduced tank-wagon and net dealer gasoline .5 cent in Jackson; October 10, advanced tank-wagon and net dealer gasoline .5 cent in Covington.

Standard Oil Co. (Indiana) September 1 reduced dealer gasoline 1.5 cent in Decatur; August 26, reduced tank-wagon gasoline 1 cent in Saginaw; October 7, advanced tank-wagon kerosene .5 cent in Detroit.

Socony-Vacuum Oil Co., Inc., October 11 advanced tank-wagon gasoline in Albany, .4 cent; Syracuse, .1 cent; Manchester, 1 cent; Burlington, .5 cent. Correction—Tank-wagon gasoline in Worcester, was advanced .5 cent October 4 to 13.5 cents instead of 1.5 cents to 14.5 cents.

Standard Oil Co. of New Jersey October 9 advanced tank-wagon kerosene .35 cent in New Jersey.

Continental Oil Co. October 12 reduced tank-wagon dealer gasoline 1 cent in Oklahoma City.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of October 17, 1939

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 octane and below		.04½
63-66 octane	.04¾	.04⅞
67-69 octane	.04⅞	.05⅛
70-72 octane (regular)	.05⅛	.05⅜
60-62 400 grades:		
62 octane and below	.04½	.04⅝
63-66 octane	.04¾	.04⅞
67-69 octane	.04⅞	.05⅛
70-72 octane (regular)	.05⅛	.05⅜
64-66 375	.04⅜	.04⅝
68-70 360	.05	.05⅛

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below		.04½
63-66 octane	.04¾	.04⅞
67-69 octane	.04⅞	.05⅛
70-72 octane (regular)	.05⅛	.05⅜
60-62 400	.04½	.04⅝
64-66 375	.04⅜	.04⅝

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
62 octane and below	.04⅝	.04¾
63-66 octane	.05	.05⅛
67-69 octane		.05⅜
70-72 octane (regular)	.05⅛	.05½

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
62 octane and below		.04⅞
67-69 octane	no quotations	
70-72 octane (regular)		.05¼

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.04½	.04⅝
63-66 octane	.04¾	.04⅞
67-69 octane	.05	.05⅛
70-72 octane (regular)	.05⅛	.05⅜
60-62 400 grades:		
62 octane and below	.04½	.04⅝
63-66 octane	.04¾	.04⅞
67-69 octane	.05	.05⅛
70-72 octane (regular)	.05⅛	.05⅜
68-70 360	.05	.05⅛

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor		.05
65 octane	.06½	.07
72-74 octane (regular)	.06½	.07

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.06¼	.08
58-60 400, 65 oct. and higher	.07¼	.09

EAST COAST (domestic)—

U. S. Motor, 65 and above:		
*New York (Bayonne)	.06½	.06⅝
Philadelphia	.06¼	.06⅜
Baltimore	.06¼	.06⅜
Charleston, S. C.	.06⅜	.07

*All grades of gasoline ⅛ to ¼ cent less for barge shipments. New York Harbor prices are for New York and New England delivery. Prices for New Jersey delivery ¼ cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
Below 60 octane	.05¾	.06
65-67 octane	.06¼	.06½
68-70 octane	.06⅜	.06½

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.04¼
Grade 18-55		.05⅛

NORTH TEXAS—

Grade 26-70		.04¼
Grade 18-55		.05⅛

CALIFORNIA—

75-85 375-390	.05½	.06¼

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70		.04⅝

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110-flash, 540-550 e.p.	.03½	.03⅝
41-43 gr., 300-320 l.b.p., 110-125 flash, 500-520 e.p.	.03⅝	.03¾
46-48 gr., 210-230 l.b.p., 480-max., e.p.	.03⅞	.04⅛

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.03⅝	.03¾
42-44	.03¾	.03⅞

NORTH TEXAS—

41-43	.03⅝	.03¾

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.03½	.03⅝

ARKANSAS (Ark. and N. La. del.)—

41-43		.03⅝

PENNSYLVANIA (inland refineries)—

45	.04¾	.05
46	.05	.05⅛
47	.05	.05⅛

CHICAGO (Based on Group 3)—

41-43	.03⅜	.03⅝
42-44	.03⅝	.03⅞

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04¾	.05¾

NEW YORK (Bayonne, N. J.)—

41-43	.04⅞	.05

***GULF COAST (domestic)—**

41-43	.04½	.04¾

*Barge price ⅛ cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03½	.03⅝
No. 1 prime white, 38-42		.03⅝
No. 1 straw, 38-40	.03¼	.03⅜
No. 2 straw, 32-36	.03⅛	.03¼
No. 2 dark, 32-36	.02¾	.02⅞
No. 3 zero to 15, 28-32	.02⅞	.03
No. 3, 15 and above, 28-32	.02⅝	.02¾

NORTH TEXAS—

No. 1 prime white, 38-42	.03¼	.03⅜
No. 1 straw, 38-40	.03⅛	.03¼

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03	.03⅛

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36	no quotations	

CHICAGO (Based on Group 3)—

Range oil	.03⅝	.03⅝
No. 1 prime white, 38-40	.03⅜	.03½
No. 1 straw, 38-40	.03¼	.03⅜
No. 2 straw, 32-36	.03⅛	.03¼
No. 2 dark, 32-36	.03	.03⅛
No. 3, zero to 15, 28-32	.03	.03⅛
No. 3, 15 and above, 28-32	.02⅝	.02⅞

NEW YORK (Bayonne, N. J.)—

*No. 1	.04⅝	.05
*No. 2	.04⅝	.04½
*No. 4	.04½	.04½

*Barge deliveries ⅛ to ¼ cent under above tank-car price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil, under 35	.02¾	.02⅞
No. 5, low pour point, 18-22	.70	.75
Below 14 fuel oil, industrial	.45	.50

NORTH TEXAS—

U.G.I. gas oil, under 35	.02¾	.02⅞
No. 5, low pour point, 18-22	.70	.75
Below 14 fuel oil, industrial	.45	.50

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.70	.75

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅞	.02⅞
No. 5, low pour point, 18-22	.70	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pour point, 10-16	.60	.70
No. 6, 15 and above, 10-16	.35	.45

PENNSYLVANIA (inland refineries)—

36-40	.04⅛	.04½

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.15	1.30
24 plus diesel, per bbl.	1.00	1.30
24 plus diesel (bunkers)	1.30	1.40
12-16 (bunkers at tidewater)	.70	.90
10-16 (cargo lots)	.65	.75
12-17 (tank cars)	.60	.85
10-17 (high sulfur)	.50	.70
San Joaquin Valley:		
10-18 (tank cars)	.55	.75
24 plus diesel, per bbl.	1.00	1.25
San Francisco:		
24 plus diesel, per bbl.	1.45	1.50
24 plus diesel (bunkers)	1.55	1.60
10-16 (bunkers)	.90	.95

GULF COAST—

No. 2 fuel		.04¼
43-47 diesel		.04
48-52 diesel		.04¼
53-57 diesel		.04½
58 and above diesel		.04¾
Bunker C (bulk cargoes)	.95	1.00
Bunker C (bunkers)	.95	1.00

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.04¼
28-30 diesel (lighterage 6¼c per bbl.)		1.75
28-30 diesel (tank cars)		.04¼
Bunker C (to ocean-going ships in N. Y. Harbor)		1.15
Industrial fuel (tank cars)		.04

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

190-200 D, 15-25		.26
150-160 D, 0-10		.23
150-160 D, 15-25		.22
150-160 E, 15-25		.22
100-110 D, 0-10		.22
Steam-refined:		
600 dark green (untreated)		.07

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour point	.28½	.32
15 pour point	.27½	.31
25 pour point	.24	.30
Steam refined:		
600	.13½	.17
650	.15	.20
600 flash	.15½	.20½
630 flash	.19	.23

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

0-10 pour point:		
150-3		.12
180-3		.13
180-4		.12½
200-3		.13½
200-4		.13
250-3		.14½
250-4		.14
280-3		.15½
280-4		.15
300-6½		.16
400-3½		.17
100-2½ paraffin oil		.06⅝
15-25 pour point:		
200-3		.13
200-4		.12½
250-3		.14
250-4		.13½
280-3		.15
280-4		.14½

GULF COAST—

Pale oils:		
200-3	.06½	.07
300-3	.07	.07¼
500-3½	.08	.08¼
750-3½	.08	.08½
1,200-3½	.09	.09½
2,000-4	.09½	.09¾
Red oils:		
200-5-6	.06¼	.06¾
300-5-6	.06¾	.07
500-5-6	.07¾	.08
750	.07¾	.08
1,200-5-6	.08¾	.09¼

CALIFORNIA (moving to dom. market)—

Pale oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¾	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11¾
900-6½ plus	.09¾	.11¼

PENNSYLVANIA—

150 vis. at 70° F., 3 color, 400-405 flash:		
Zero pour point		.33½
10 pour point		.32½
15 pour point		.31½
25 pour point	.24	.30
200 vis. at 70° F., 3 color:		
Zero pour point		.31½
10 pour point		.30½
15 pour point		.29½
25 pour point	.23	.28

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (A.m.p.) w.c. scale	.0450	.0475

PENNSYLVANIA (inland refineries)—

122-124 (A.m.p.) w.c. scale	.0450	.0500
124-126 (A.m.p.) w.c. scale	.0490	.0525

NEW YORK—

Wax in bags fully refined:		
123-125 (A.m.p.) wax		.0435
125-127 (A.m.p.) wax		.0455
128-130 (A.m.p.) wax		.0460
130-132 (A.m.p.) wax		.0485
133-135 (A.m.p.) wax		.0515
135-137 (A.m.p.) wax		.0540
124-126 (A.m.p.) w.s.	.0450	.0500
124-126 (A.m.p.) y.s.	.0450	.0500
Petrolatum in barrels, carload lots:		
Dark green	.02	.02⅛
Amber	.02⅝	.02⅞
Extra amber	.02⅝	.02⅝
Lily white	.05¼	.05¾
Snow white	.06¼	.06⅜
Cream	.04¼	.04¼

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.05	.05¼
60-62 400	.05½	.06
65 octane	.06¼	.06⅛
68 octane	.06⅝	.07
70 octane	.07	.07⅛

LOS ANGELES—

U. S. Motor grades:		
55-65 octane	.04¾	.05
65-69 octane	.05¼	.05⅛
Above 69 octane	.05½	.06

KEROSENE

GULF COAST—

41-43 prime white		.05¼
41-43 water white		.05¼

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.a.s) in bbls.—

Cylinder stocks:		
600 S.R. unfiltered	.25	.26½
650 S.R. unfiltered	.27	.28½
600 flash, S.R.	.28	.30½
630 flash, S.R.	.30	.34
Bright stock:		
8 color	.40	.42

NEUTRAL OIL

200-3 color	.38	.43
150-3 color	.37	.40

PARAFFIN WAX

NEW YORK (prices per pound)—

123-125 A.m.p.		.0435
125-127 A.m.p.		.0455
128-130 A.m.p.		.0460
133-135 A.m.p.		.0515
135-137 A.m.p.		.0540
Crude scale:		
124-126 w.s.	.0450	.0500
124-126 y.s.	.0450	.0500

Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1939 High	1939 Low	Week ending Oct. 14 High	Week ending Oct. 14 Low	Week ending Oct. 14 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1938	Com. sh. earn. 1938	Com. sh. earn. 1937	1938 High	1938 Low	1937 High	1937 Low
74½	50	68	67	67	Amerada Corp.	788,675	N.P.	50cQ	10-31-39	$2.00	$2.07	$3.04	78	55	111⅞	51½
24¾	18⅛	24⅜	23⅞	24⅛	Atlantic Refining	2,663,999	$25	25cQ	9-15-39	1.00	1.40	3.51	27⅝	17⅝	37	18
21½	10¼	17⅜	15⅜	17	Barber Asphalt Co.	390,223	$10	75c	12-16-37	....	—.85	1.91	23¾	12⅛	43⅜	10⅛
19½	11⅛	16⅞	16¼	16⅝	Barnsdall Oil Co.	2,250,344	$5	25cQ	8-1-39	1.00	1.26	.85	21⅜	10⅛	35¼	10
9⅞	6½	9	8⅝	8⅞	Consolidated Oil Corp.	13,751,846	N.P.	20cQ	11-15-39	.80	.55	1.48	10¾	7	17⅜	7
31½	19⅞	28⅞	27⅝	28¼	Continental Oil of Delaware	4,682,581	$5	25cQ	9-28-39	‖1.00	1.10	2.98	35¾	21¼	49	24
9⅜	4½	8	7½	7¾	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	.83	.94	9¾	5	17⅝	4⅜
20¼	10	15⅜	15⅜	15⅞	Lion Oil Refining	435,815	N.P.	25cQ	10-10-39	1.00	2.09	2.17	25⅛	15⅝	34	12½
18	11⅛	16⅞	15¾	16⅜	Mid-Continent Petroleum	1,857,912	$10	25c	6-1-39	.60	.56	2.86	22⅝	12¼	35⅜	14
14⅞	8¾	12	12	12	Mission Corporation	1,379,245	$10	25c	6-29-39	1.00	1.04	1.31	17⅜	10⅝	34	15
15½	5⅝	12¼	11⅛	11⅛	National Supply	1,155,517	$10	$2 pf.‡	12-22-37	....	—.79	4.90	23	12½	41⅝	17⅝
10½	6	8⅝	8¼	8⅜	Ohio Oil Co.	6,563,377	N.P.	20c	12-15-38	.20	.25	1.30	14⅞	8⅞	22⅞	8
11⅞	7⅜	9½	9½	9½	Pacific Western Oil	1,000,000	N.P.	50c	12-20-38	.50	1.22	1.39	15⅞	10¼	29⅜	11⅜
8¾	5	6½	6½	6½	Pan American Pet. & Trans.	4,702,945	$5	$1*	12-21-37	....	.08	1.18	9¼	6¼	17⅛	7
46½	31¼	45⅞	44⅜	44¾	Phillips Petroleum	4,449,052	N.P.	50cQ	9-1-39	‖2.00	2.03	5.42	44⅜	27¼	64	30½
24	17⅛	23	22¼	22⅜	Plymouth Oil Co.	1,006,200	$5	35cQ	9-30-39	1.40	2.59	2.85	25⅝	15	29⅞	13
11⅜	6⅛	10⅛	9½	9¾	Pure Oil Co.	3,982,031	N.P.	25c	12-1-37	...	.38	2.15	13½	8¼	24⅜	8¾
10¼	6⅝	8¼	8	8¼	Richfield Oil Corp.	4,010,000	N.P.	50c	12-21-38	.50	.51	.35	9⅞	5	6½	4½
24⅜	15½	22	20¾	22	Seaboard Oil of Delaware	1,244,383	N.P.	25cQ	9-15-39	1.00	1.52	1.97	27½	15½	54⅛	16
17¼	9⅞	14½	13⅞	14¼	Shell Union Oil	13,070,625	N.P.	25c	7-20-39	.70	.72	1.44	18⅜	10	34¾	14⅞
29½	15½	24½	23½	23½	Skelly Oil	995,349	$15	50c	11-15-39	1.00	2.27	6.07	34¾	18½	60⅝	26½
15⅜	10¼	14	13½	13¾	Socony-Vacuum	31,206,071	$15	25cSA	9-15-39	.50	1.29	1.82	16⅜	10¾	23¼	13
33⅝	24¼	29	28¼	28⅞	Standard Oil of California	13,004,153	N.P.	25cQ	9-15-39	1.40	2.22	3.17	34⅞	25⅛	50	27⅛
30	22¾	27⅝	27	27	Standard Oil (Indiana)	15,272,020	$25	25cQ	9-15-39	1.00	1.82	3.66	35½	24¾	50	26½
53½	38	48⅜	47¼	47¼	Standard Oil of New Jersey	26,618,065	$25	50c¶	6-15-39	§1.50	2.86	5.64	58⅜	39¾	76	42
66	45¾	61	57	60¾	Sun Oil	2,316,484	N.P.	25cQ	9-15-39	1.00	1.07	3.86	65⅛	45	77½	44½
3⅝	1⅜	2⅞	2¾	2⅞	Superior Oil Corp.	1,388,979	$1	10c	12-28-38	.10	.24	.32	4¼	1⅜	7¾	1½
50¾	32½	47½	45⅞	45⅞	Texas Corp.	10,876,882	$25	50cQ	10-2-39	2.00	2.13	5.02	49⅝	32⅝	65⅛	34¾
5¾	3¼	4¾	4½	4⅝	Texas Gulf Producing Co.	888,144	N.P.	10c	6-15-39	.15	.86	.68	5⅞	2⅝	9⅝	2
11⅜	7	10	9¾	10	Texas Pacific Coal & Oil	888,236	$10	10c	9-1-39	.40	1.16	1.11	12½	7	16⅝	5⅜
14¼	9½	12¾	12½	12⅝	Tide Water Associated	6,375,253	$10	15c	9-1-39	1.00	1.28	2.08	15¾	10½	21⅝	13¼
19¾	15⅛	18	17⅝	18	Union Oil of California	4,666,270	$25	25c	8-10-39	1.20	1.47	2.58	22½	17⅛	28⅛	17½
24¼	20⅛	23⅜	23	23¼	Union Tank Car Co.	1,177,381	N.P.	30cQ	9-1-39	1.30	1.16	1.70	23½	20	31½	22
3⅞	2⅜	3¼	3¼	3¼	Wilcox Oil & Gas	487,568	$5	....	5-10-28	....	.52	.24	3½	1⅝	6¼	1⅜

*Payable in 3½ per cent notes. †Includes extras. ‡One-tenth share $2 preferred stock. §Also 1½ per cent stock dividend. ‖Also right to subscribe to bonds. ¶Also 1 per cent in stock. —Deficit.

New York Curb Exchange

1939 High	1939 Low	Week ending Oct. 14 High	Week ending Oct. 14 Low	Week ending Oct. 14 Close	Stocks—	Total shares Outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1938	Com. sh. earn. 1938	Com. sh. earn. 1937	1938 High	1938 Low	1937 High	1937 Low
11¾	5½	8⅜	8	8	American Republics Corp.	1,308,049	$10	10c	7-11-38	$0.10	—$0.22	$0.27	11¾	5	10	6⅝
7¼	2½	4	4	4	Bridgeport Machine Co.	270,000	N.P.	$1.25	12-30-37	....	—.14	1.90	10¼	4⅞	21⅜	7
34¾	26½	29¼	29¼	29¼	Buckeye Pipe Line Co.	200,000	$50	50c	9-15-39	2.00	2.36	4.02	39	22½	51½	36
130	110	115½	115¼	115¼	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	9-25-39	6.50	5.32	6.73	128	97	112	95½
9¼	4½	6⅛	5⅝	5⅝	Cities Service (new)	3,704,067	$10	....	6-1-32	....	.23	1.02	11	5⅛	5⅜	1⅛
2¼	½	1⅞	1¾	1¾	Cosden Petroleum	462,551	$1	....	. ....	....	....	.19	2⅜	⅞	5½	1½
28	16¾	26⅞	25½	26½	Creole Petroleum	6,975,383	$5	50cSA†	6-15-39	1.00	1.64	1.61	27½	17½	38¾	20¼
7⅛	3⅝	..	..	..	Darby Petroleum	351,390	$5	25cSA	1-15-39	.50	....	1.36	10¼	5½	18⅝	6½
2⅝	1½	2¼	2¼	2¼	Derby Oil & Refining	263,162	N.P.	....	.....	...	—.91	1.34	3½	1½	8⅜	2¼
20	15⅛	19	18½	18½	Eureka Pipe Line	50,000	$50	50c	11-1-39	3.00	—.37	—.12	31	16	47½	24½
45	29¼	43⅝	41¼	43	Gulf Oil Corp.	9,076,202	$25	25cQ	10-1-39	1.00	1.43	3.51	46⅞	33	63½	33
71	52½	68⅞	68	68¾	Humble Oil & Refining	8,987,840	N.P.	62½c	10-2-39	3.00	3.98	5.22	72⅝	56	87	54⅞
17	11⅜	13½	12¾	13½	Imperial Oil of Canada	26,965,078	N.P.	62½cSA†‡	6-1-39	1.25	.96	.98	19½	14⅛	24¼	14½
7	5⅝	6⅝	6½	6½	Indiana Pipe Line	300,000	$10	30c	5-15-39	.50	.47	1.03	9⅜	6	15	5⅞
27½	17½	20⅜	19⅜	19⅞	International Petroleum	14,324,088	N.P.	1.00†‡	6-1-39	2.50	1.98	....	31¼	21	39½	23½
3¾	2⅛	2⅜	2⅜	2⅜	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	.10	.14	.17	5	2⅛	8¾	2⅝
9½	7⅛	8½	8⅜	8⅜	Lone Star Gas	5,553,747	N.P.	20c	8-21-39	.60	.88	1.14	10⅜	6⅝	14¼	5¼
7¾	4	6⅛	5⅝	5⅝	Louisiana Land & Exp.	2,977,449	$1	10cQ	9-15-39	.45	.45	.58	9⅜	6½	15¼	6⅜
17	14½	..	..	..	Margay Oil Corp.	149,943	N.P.	25cQ	7-10-39	1.00	2.28	3.26	24	16	33½	17
8¾	6⅝	7¾	7½	7½	Midwest Oil Co.	998,474	$10	45c	6-15-39	1.00	.93	1.14	9¾	6⅝	14⅝	6¼
5⅞	4⅞	5½	5½	5½	Mountain Producers	1,593,584	$10	30cSA	6-15-39	.60	.62	.76	5¾	4½	7⅞	4⅛
14	11¼	13⅜	13⅛	13¼	National Fuel Gas	3,810,183	N.P.	25cQ	10-16-39	1.00	.84	.96	14⅝	11½	19½	12
8⅝	7¼	8¼	8¼	8¼	National Transit	509,000	$12.50	35c	6-15-39	.75	.88	1.19	9¼	6½	12½	7¼
1⅜	1½	1⅜	1½	1½	New Mexico and Arizona	1,000,000	$1	1c	12-1-37	....	.02	.02	2⅝	1½	5	1⅜
4⅞	4	4½	4½	4½	New York Transit	100,000	$5	25c	10-14-39	.25	.16	.49	4½	3½	5⅝	3⅞
6	4¼	5¼	5¼	5¼	Northern Pipe Line	120,000	$10	15c	6-1-39	.35	.24	.78	6	4	12¾	5¾
7⅝	4	5⅝	5⅝	5⅝	Pantepec Oil	2,857,000	$1	....	.....	....	....	....	7¾	3½	9⅝	2⅜
3¾	1¼	3¾	2⅞	3¾	Root Petroleum Co.	336,045	$1	25c	2-1-37	....	.17	—.17	4½	1⅝	12¾	2
3	1⅞	..	..	..	Ryan Consolidated	298,931	N.P.	....	.....	....	.29	.46	4	2⅛	6½	2¼
4¼	3½	..	..	..	Southern Pipe Line	100,000	$10	15cSA	9-1-39	.30	—.27	.85	5⅝	3¼	7¼	3⅞
39½	26¾	38¼	37	37¾	South Penn Oil	1,000,000	$25	37½cQ	9-29-39	1.75	1.44	4.64	39	28¾	56	35
19¾	18	21	20	21	Southwest Penna. Pipe Lines	35,000	$50	50cQ	10-2-39	2.00	—.41	.95	22¼	16½	42	20
18⅞	17¼	18⅜	18⅛	18⅛	Standard Oil of Kentucky	2,604,790	$10	25c	9-15-39	1.25	1.45	1.60	18⅜	15	21⅛	14⅜
26⅜	17	25⅞	25½	25⅞	Standard Oil of Ohio	753,740	$25	25c	9-15-39	1.00	1.81	3.67	22⅜	16¼	45	16
2¾	1¾	2¼	2⅛	2⅛	Sunray Oil	2,007,076	$1	5c	4-27-39	.05	.23	.42	3¼	2	4⅞	2
4	2⅝	3⅛	3	3	Texon Oil & Land	936,024	$2	10c	6-30-39	.60	.56	.51	5¼	3½	7⅝	2
6	2½	3¾	3½	3½	Transwestern Oil Co.	750,000	$10	....	.....	....	—.12	.48	7⅝	4¼	13⅞	4⅝
3⅜	1⅝	2½	2¼	2½	United Gas Corp.	7,818,959	$1	....	.....	....	—.51	.25	5¼	2⅝	13⅞	3

†Includes extras. ‡Payable in Canadian funds. —Deficit.

New or Improved Equipment

H. & B. Develops New Line of Low-Pressure Swing Joints

H. & B. Sales Co., Long Beach, Calif., has introduced a line of Champion low-pressure swing joints, made especially for use in refineries and for all fluid-loading operations under pressure. These joints have the latest design and construction features to insure maximum flexibility under any pressure up to 500 lb. They are designed for all types of loading operations where leakproof operation is essential, and will handle fluid, steam or gas without binding or leaking. Wherever free-line movement is required, these joints will afford complete 360° rotation in one, two or three planes, as desired.

Construction is of drop-forged steel castings. A brass wearing ring takes the pressure load and provides a smooth bearing surface for the swivel. The double-swing joints are made of highest-quality brass elbows, with drop-forged swivel ends, which also turn on a brass bearing. Lubrication of all bearing surfaces is accomplished quickly and easily by the fittings located on the outside. The special composition packing, made to resist the action of acids, gases and high temperatures, may be replaced without removing the joints from the line.

With Slim-Hole in Venezuela

Charles E. Byars, of Stroud, Okla., has been employed by the Venezuelan Government to supervise the drilling operaions of a Franks Manufacturing Corp. Slim-Hole Model E-4000-A portable rotary drilling unit, recently purchased by Venezuela. The unit, a complete rig with derrick, swivel, kelly, rotary table, engines, pumps, and draw works, unitized on a tandem heavy-duty truck, will be shipped from Tulsa to La Guaira, Venezuela. Mr. Byars, who will accompany the unit, is to supervise the drilling operations in its initial use and instruct Venezuelan drilling crews. He has had wide drilling experience, having supervised drilling operations in the Rocky Mountain and Mid-Continent areas for years, and more recently having been with Phillips Petroleum Co., operating Franks' Slim-Hole units in the Kansas area.

Added Manufacturing Building Increases Enardo Facilities

Manufacturing facilities of Enardo Foundry & Manufacturing Co., Tulsa, have been enlarged because of the increasing demand for its tank equipment. The newer building, the one to the left in illustration, was occupied last month. The one on the right was occupied early this year.

Enardo now has all phases of the manufacture of Enardo tank equipment in these buildings, from the engineering, drafting, pattern, foundry, and machine shop to the final step of shipping. The company can furnish lease-tank equipment from the plain round and elongated gage hatches to a complete vapor-recovery system for tank batteries.

Phil Drane is the founder and president. E. J. Broberg, registered mechanical engineer with more than 18 years of experience, is assistant to Mr. Drane, being in charge of engineering and design. Max Wise is sales and development engineer. E. H. Taylor, 106 Ximeno Avenue, Long Beach, Calif., is in charge of that territory.

Art Nixon Now With B. S. & B.

Art Nixon, vice president and sales manager of Happy Belting Co. the past 3 years, has joined the sales organization of Black, Sivalls & Bryson, Inc. He will be stationed in Fort Worth, Tex., and cover Texas, Louisiana, New Mexico and other oil-country states.

Mr. Nixon, who had been with Happy Belting Co. since 1924, went to the Mid-Continent in 1920 to represent Norwalk Tire & Rubber Co. of Norwalk, Conn. In this capacity he contacted the Happy company in Tulsa, sold that organization and after covering Oklahoma left Norwalk to join Happy Belting. In his connection with Happy, he was thrown in rather close association with the B. S. & B. organization, and this resulted in his joining the latter company.

Hughes Tool Advances Three in Engineering Department

F. L. Scott has been appointed director of research for the Hughes Tool Co., Houston, Tex., following 22 years in charge of rock-bit development. Mr. Scott graduated from Texas A. & M. College with the degree of bachelor of science in mechanical engineering in 1914, and joined the engineering staff of Hughes Tool Co. in 1917.

SCOTT *NEUHAUS* *GARFIELD*

Ralph Neuhaus, assistant chief engineer for the past 3 years, has been promoted to chief engineer. Mr. Neuhaus graduated from Cornell University with the degree of mechanical engineer in 1918 and entered the Hughes engineering department 3 years later. He has had 18 years of continuous service with the company.

L. E. Garfield has been advanced to assistant chief engineer after 13 years in the engineering department. Mr. Garfield graduated from Rice Institute in 1926 with the degree of bachelor of science in mechanical engineering.

Forty Improvements Embodied in 1940 Model Ford Trucks

Forty important improvements designed for greater overall economy feature the 1940 line of Ford V-8 trucks and commercial cars. With 42 body and chassis types, 6 wheelbases and 3 V-8 engines, it is the broadest in the Ford history. Hydraulic brakes are used on all units. The 158-in. wheelbase chassis provides an 84-in. cab-to-axle dimension on the conventional type and a 117-in. cab-to-axle dimension on the cab-over-engine type.

New styling imparts fresh, new appearance to both the regular trucks and commercial cars. The hood of the regular truck is massive in appearance, its total effect emphasized by perpendicular chrome grille bars and long horizontal louvres.

Longitudinal front springs like those on Ford cab-over-engine trucks make the engine more accessible from the bottom. At the same time, accessibility of oil gage, air cleaner, spark plugs, fuel pump, carburetor and generator has been increased by lowering the sides of the hood.

Still another change increases the general under-the-hood accessibility. The fan is mounted on the crankshaft in all conventional trucks, making it easier to reach the distributor. A lower radiator and single fan belt contribute to ease of servicing.

Peery Goes to Louisiana District

The Gilmore Wire Rope Division of Jones & Laughlin Steel Corp., in Houston, Tex., has transferred its sales and service engineer, Joe E. Peery, from the Kansas district to the Louisiana district, with headquarters in Lake Charles. Mr. Peery formerly was located in Russell, Kans., and he covered that state selling wire rope for 10 years, having been a representative of the Williamsport Wire Rope Co. before joining the Gilmore division 2 years ago. His new territory will consist of Louisiana, Arkansas, and Mississippi.

Danger of Sanding Up Is Less With New Plunger Assembly

Midco Bailer Co., Oklahoma City, Okla., announces a patented plunger and sleeve assembly, interchangeable with the regular assembly in the Type F Midco cleanout bailer, designed for use in cleaning out after sand and gravel-tamped shots or for gravel-packing liners. The manufacturers say this new plunger assembly eliminates practically all trouble due to sanding up while losing none of the efficiency and safety factors of the Midco cleanout bailer.

By placing the weight of the plunger below the sleeve the swiveling feature of the plunger is retained while presenting a square surface at the top of the assembly with the reservoir for sand and gravel held in suspension in the fluid. This space, in which sand or gravel is deposited during the upward stroke of the plunger assembly, immediately becomes a passage for fluid at the start of the downward stroke. The deposit then is loosened by the line moving through the sleeve since the plunger has limited independence with relation to the sleeve, shown in the accompanying picture.

Cooling-Tower Makers Organize

The Water Cooling Tower Association has been organized with L. T. Mart, of Marley Co., president; W. J. Hoffmann, Lilie-Hoffmann Cooling Towers, Inc., vice president, and W. J. Parker, 7 East Forty-fourth Street, New York, secretary-treasurer. Among other things the association plans to adopt a standardization program and establish a code of ethics. Headquarters are in the office of Mr. Parker, who is secretary-treasurer of W. J. Parker, Inc.

Purchasing Agents See Pipe Job

Wyatt Metal & Boiler Works, Houston, Tex., was host to approximately 100 members and associate members of the Houston Purchasing Agents Association at an informal barbecue luncheon Tuesday, October 10. The occasion was to see the job of fabricating 24-in. pipe to be used in the new paper-finishing mill in Lufkin. The visitors ran the complete process of fabricating this large-diameter pipe from the initial rolling from flat steel plates to the final coating and wrapping of the finished welded pipe.

Jarecki Store In Keensburg

Jarecki Manufacturing Co. has opened an oil-field supply store in Keensburg, Ill., in the center of the new Illinois-Indiana play in Wabash and Gibson counties. This is in addition to the Jarecki stores in Lawrenceville, Ill., and Princeton, Ind., serving the same area. Other Jarecki stores in Illinois are in Centralia and St. Elmo.

Here and There With Men Who Manufacture Equipment

J. B. O'Connor, vice president of Clark Brothers Co., spent several days in Dallas, Tex., last week and will visit other oil centers in Texas and Louisiana before returning to Olean, N. Y.

International Geophysics, Inc., has opened an office for Echo-meter service (fluid-level measurements) at 111 North Fifteenth Street, Mount Vernon, Ill., with Daniel F. Elam in charge.

S. G. Paddock has been established in the Ambassador Hotel, Tulsa, by the acoustic division of Burgess Battery Co., to provide more adequate exhaust snubbing engineering service in the Oklahoma territory. He will work in cooperation with the Burgess sales representative, Diesel Service Co., Ames, Iowa, and local dealers, Laney Co. and Diesel Supply Co., Tulsa.

MacClatchie Manufacturing Co., Compton, Calif., has appointed Hake Tool Co., Liberty Road at Homestead, in Houston, Tex., as sole distributor in the Mid-Continent for all oil-field equipment manufactured by MacClatchie.

J. H. Finney, formerly station manager for Dowell, Inc., in Midland, Tex., has been transferred to Tulsa as sales engineer, taking over the duties of James L. Coss, who has been transferred to the research department.

Meehanite Meeting In Detroit

Meehanite Research Institute of America, Inc., Pittsburgh, Pa., will hold its annual meeting in Detroit, Mich., November 1, 2, and 3. More than 50 papers describing the results of research conducted by members on all phases of foundry practice and applications of Meehanite castings will be presented. About 100 representatives of member companies from the United States, Canada, and Australia will attend.

Danger of Fouling Reduced by National's Streamlined Hook

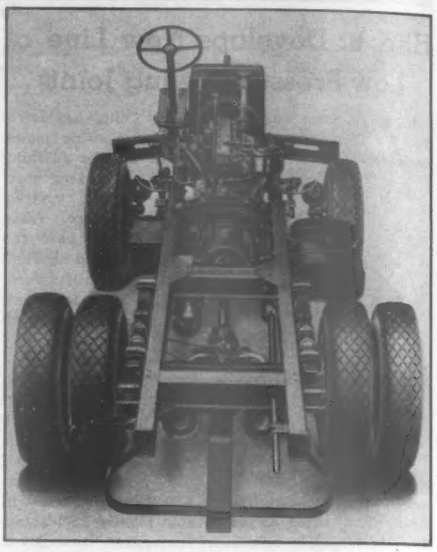
National Supply Co. has introduced a 60-ton-capacity rotary hook of new and improved design. This hook, the Ideal Type D-6, is narrow and streamlined to minimize the possibility of fouling, and the high point of hook suspension on the spring housing gives greater stability and insures against tendency to overturn. The throat, unusually large, is designed especially to allow carrying the swivel bail in a central position while providing ample additional space for the elevator links. Any upward thrust of the elevator links or the swivel bail is received on the heavy straight section at the top of the hook throat and is not taken on the tongue. Since the hook, when carrying a load, becomes a closed link, the bail or links cannot jump out of the hook.

The hook member is carried on an alloy heat-treated spring with sufficient capacity and travel to insure ease and flexibility in handling pipe. The entire spring and rotation lock assembly is enclosed against water and grit. The tongue is designed to act as a guide to facilitate the engagement of the swivel bail. When the bail is engaged the tongue is automatically locked in position. The safety lock on the tongue is readily operated from the derrick floor. Increased resistance to wear of the hook and bail members is provided by the use of special alloy steels, which gives the right combination of strength, toughness, and wear resistance.

To attach the hook it is only necessary to remove one bolt and the hinged-type upper bail may be passed through the clevis of the block. This operation, including locking the bail back into position, takes only a few minutes. A locking device that may be locked in eight different positions provides unusual convenience. This can be operated readily from the derrick floor or from the fourble board.

New Cab-Over-Engine Trucks Announced by International

For several years International 1½-ton cab-over-engine motor trucks have been proving themselves in a variety of work in places where close quarters and



congested traffic prevail. Now, International Harvester is entering the heavy-duty cab-over-engine field with Models D-500, DR-500, and DS-500, having capacity rating of 12,300 lb. (including cab, body equipment, and pay load), and Model DR-700, having capacity rating of 18,900 lb. (also including cab, body, equipment, and pay load). Model D-500 has a spiral bevel-gear-drive rear axle, Model DS-500 a two-speed rear axle, and Models DR-500 and DR-700 have double-reduction-drive rear axle. All these models are available with wheelbases of 94, 106, and 124 in. and in addition the Model DR-700 may also be obtained with wheelbase of 142 in.

As is the case of the 1½-ton models, the new heavy-duty cab-over-engine Internationals will help many business men to solve their parking problems. With shorter overall length drivers can work into small spaces behind and alongside buildings and through narrow streets and alleys. They also can save time by moving faster to and from loading docks and to and from various crowded places where deliveries are made. The result is more stops and sales per day.

The new units may be used as straight trucks or truck-tractors, being especially adapted for work where short overall length is an operating or legal necessity. Compact construction results in less truck or tractor-trailer overall length with proportionately greater load-space length. The short wheelbase chassis are adapted for either truck-tractor or dump-truck service, and the long wheelbase chassis lend themselves to a wide variety of attractive bodies for many lines of business.

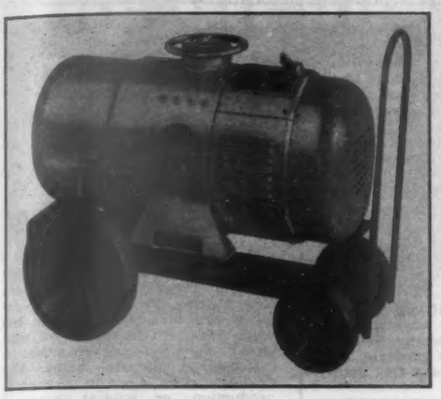
Stirling Joins Dowell Staff

Dowell, Inc., has appointed Marshall L. Stirling a member of its general sales staff in Tulsa, in the capacity of sales engineer. Mr. Stirling, who has been associated with the oil industry many years, went to Dowell June 1, 1939, from Gas Lift Corp., which he served as sales manager in Houston, Tex. Before his connection with Gas Lift he was field engineer and assistant to the general superintendent of the natural-gas and gasoline department of Magnolia Petroleum Co. in Dallas, Tex. He also was employed for years as sales engineer by R. B. Hall Co. of Dallas, handling the special industries department of Philip Carey Co.

Mr. Stirling will be closely associated with R. D. Shaw, sales manager, acting as special account representative and sales supervisor for outlying districts.

One Control Device Used by Wilson Electric-Arc Welder

A new single-operator motor-generator arc welder, requiring only one control device for operation, has been announced by Wilson Welder & Metals Co., Inc.,



60 East Forty-second Street, New York. The Wilson "Hornet" employs for its control a single simple handwheel located on top of the unit. Adjustment of this handwheel permits an infinite number of current settings. Dial markings are so accurately calibrated that meters are not required.

Single-pole control design assures a current output that will not vary, resulting in a constant, uniform arc at all times. Accidental reversal of polarity is impossible because the electric current is so designed that a small snap switch must be flicked by the operator to change the polarity. The "Hornet" is a two-bearing unit, with motor rotor and generator armature mounted on a common shaft. Ventilation is furnished by propeller blades attached to the revolving shaft.

Federal Motor's 1940 Line of Trucks Covers Wide Range

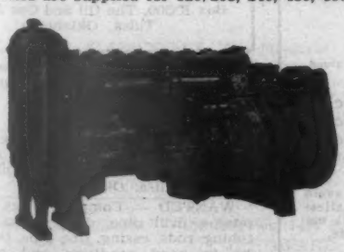
Federal Motor Truck Co.'s 1940 line includes 39 models from the light, speedy ¾ tonners up to the heavy-duty trucks designed for heaviest hauling.

In addition to a complete line of conventional models from ¾ to 8-ton, there is a group of cab-over-engine trucks from 1½ to 5½-ton; a series of 13 six-wheelers, with ratings from 2 to 8-ton and also several models built for specialized delivery service.

Cabs, especially styled to harmonize with chassis lines, are produced in Federal's own cab and body-building division. For most models, cabs are offered in standard type with a one-piece windshield and in de luxe type with a V windshield. Sleeper cabs are also available for long-distance service. Each detail of cab design and construction has been engineered to provide comfort, safety, and convenience for the driver.

Murphy Generator Sets Are of Simple and Compact Design

A line of diesel engine-electric generator sets of unusual simplicity and compactness is manufactured by Murphy Diesel Co., Milwaukee, Wis. Standard a.c. units carry continuous load ratings of 55, 85 and 100 kw. Generators are supplied for 120/208, 240, 480, 600, and



2,400-volt 60-cycle three-phase current and for 110/220-volt 60-cycle single-phase circuits.

A complete factory-wired assembly of generator-control instruments mounted on the generator frame eliminates the need of the conventional switchboard. Simple connections to the main-line switch complete the electrical installation.

The belt-driven exciter, operating at higher than generator speed, provides quicker exciter response and better voltage regulation. Close coupling of engine and generator, with the fact that all generator accessories are mounted on top of the generator frame, reduces the floor space required for the installation of these diesel-electric generator sets to the minimum. Simple synchronizer relay equipment is provided by means of which two or more Murphy diesel a.c. generator sets may be automatically synchronized.

As the illustration shows, all controls for both the diesel engine and the generator are grouped to place the entire unit under the operator's fingertips at all times.

Correction

An error occurred in the advertisement of Nordstrom lubricated valves in The Oil and Gas Journal of October 5. The statement, "Nordstrom valves are available in types rated to 10,000 lb. *working* pressure" should have read, "*test* pressure." Working pressures are up to 5,000 lb. and test pressures up to 10,000 lb. The error was made by the writer of the advertisement and the corrected proof was received by The Oil and Gas Journal too late for correction.

Trade Literature

WAUKESHA MOTOR CO., Waukesha, Wis.—Two bulletins on Waukesha Multi-Fuel engines.

ALLIS-CHALMERS MANUFACTURING CO., Milwaukee, Wis.—"We've Gone Places Together," an illustrated booklet giving the stories of the company's thirty-eight 50-year men.

POMONA PUMP CO., Pomona, Calif.—Bulletin 34, announcing new Pomona jet pump.

LINCOLN ELECTRIC CO., Cleveland, Ohio.—Bulletin on diesel-engine-driven "Shield-Arc" welder.

BABCOCK & WILSON CO., 19 Rector Street, New York.—32-page bulletin, water-cooled furnaces.

RUBBER CHEMICALS DIVISION OF E. I. DU PONT DE NEMOURS & CO., INC., Wilmington, Del—Current issue Neoprene Notebook.

RUEMELIN MANUFACTURING CO., 3860 North Palmer Street, Milwaukee, Wis.—Bulletins 24-C and 27-C, welding-fume collectors and cloth-type dust filters.

HOMESTEAD VALVE MANUFACTURING CO., Corapolis, Pa.—Bulletin, two models of Hypressure Jenny, steam-vapor spray cleaner.

Reed Nonlubricated Plug Valve Is Simple and Easy Opening

The Reed nonlubricated plug valve, manufactured by Reed Roller Bit Co., Houston, Tex., is described as a simple, sturdy, easy-opening, dependable general-

purpose valve, conforming to all established material, dimension and test standards. The valve is opened or closed by a single operation, a quarter turn of the stem. The body, bonnet, packing and stem are of conventional design, but the plug, integral with the stem, is cylindrical. The plug is positioned within a corresponding cylindrical bore in the body, but does not contact it. The sealing members are two opposed segments which float in pockets in the plug. The plug segments are lifted off their seats before they are moved to the open position, minimizing friction and assuring ease of operation.

No lubrication is needed because breaking the segment seal relieves fluid pressure, and this action reduces segment sliding friction to a minimum while the valve is being opened. When the valve is being opened or closed, the forward edge of the segment acts as a wiper and assures a clean seat, free from settlement or abrasives.

This valve is designed to handle saturated and superheated steam, water, oil, gas, acids, boiler blowdown, gasoline, sludges, etc.

DIESEL OR GASOLINE POWER IS OPTIONAL ON NEW UNIT

Shift a lever and change instantly from wheel to track operation. Shift back and "roll on rubber" like any conventional wheel-type truck. That tells the story of the new Model C-5 Linn unit manufactured by Linn Manufacturing Corp., Morris, N. Y. The unit is powered by the Hercules six-cylinder gasoline engine YXC3, 4⅝ by 4¾ in. If diesel power is desired, Hercules diesel engine DRXB, 4⅝ by 5¼ in., is supplied, having the same torque as the gasoline engine.

Designed primarily to eliminate the need for auxiliary equipment or rehandling of the load in various types of heavy-duty haulage service, Model C-5 combines the advantages of track and wheel operation by methods said to be singularly free from complications and without requiring the operator to take time out for conversion of the unit.

When operating on pneumatic-tired wheels the drive is on the front wheels. When operating on tracks, the drive is on the tracks and the front wheels simultaneously. The quick conversion of the unit is accomplished by a hydraulic jackknife lever unit, which raises and lowers the rear wheels. Conversion is made without the driver leaving his seat in the cab. The rear wheels can be raised to allow 9 in. of road clearance. When the drive is on wheels there is 7 in. of road clearance under the traction unit.

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SACRIFICE 40-acre Oil Lease, Chaves County, for only $10.00, full price. Guarantee title. P. O. Box 191, Clovis, N. Mex.

WILL they find oil in the Forest City Basin? Get the facts about 26 wells drilled this year. Particulars. Box 423, St. Joseph, Missouri.

1600 ACRES for drilling contract. Geologized and recommended. Randolph County, Illinois. Box 5, Sparta, Illinois.

CALIFORNIA Oil Land Surveys and Subdivisions. L. H. Gowdy, Licensed Surveyor and Civil Engineer, San Marino, Calif.

OIL LEASES, producing oil royalty, drilling blocks, and bargains in Texas ranch lands. Address—Licensed Trustee. Box 1203, Abilene, Texas.

WANT CAPITAL to invest in perpetual mineral rights in North Permian Basin in Texas and New Mexico in major company blocks on geophysical highs. Rapid development under way now. Will take interest after all monies have been repaid. Address Box J990, The Oil and Gas Journal, Tulsa, Oklahoma.

FOR SALE Oil and gas leases and small production located in Kentucky shallow field, and leases located in Clay County, Tenn. Have for sale two tracts of proven Fluorspar and Zinc deposits; reports furnished on request. W. P. Harley, Bowling Green, Kentucky.

WILL ASSIGN ⅝ interest in proven shallow oil and gas field for financial assistance to drill. Address Box K-305, The Oil and Gas Journal, Tulsa, Okla.

AN opportunity for you in a new oil field in Arizona. Good drilling proposition. 2320 E. McDowell, Phoenix, Arizona.

WANTED—proven gas leases and old producing wells. Will finance drilling large block. Will not deal with brokers. Box 93, Tulsa, Oklahoma.

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Leases and Drilling Blocks

NEW MEXICO WEEKLY OIL SCOUT REPORT.—Send for sample copy. Roy G. Barton, Box 968, Hobbs, N. M.

EAST TEXAS Woodbine—Trinity sand wildcats starting shortly offer best chances big quick money. Leases—Royalties. E. CROFT, PROCTOR, TEXAS.

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THE OSBORN OIL GROUP, is starting a drilling campaign on proven leases in Illinois, Indiana and Ky. Headed by experienced oil men. Later expect to do some drilling on Gulf Coast, in gusher districts. We sell royalties under wells drilling. This is a deal to get in on. Subscribe to this oil group today. Bank Reference. Box 2152, Wichita, Kansas.

KENTUCKY OIL LEASES FOR SALE, $200 will buy one-half interest in 250 acres adjoining drilling well, Adair County, well now 300 feet. Can also furnish drilling blocks of from 1000 to 3000 acres at 20c. per acre, most of leases are 10 cent rentals. Wire or write, Frank Richardson, Columbia, Kentucky.

WILDCAT leases in southern Illinois. 50c acre up. Well going down.

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600 acres 7/ths. form 88, 1 yr. free, 25c rentals, MONTGOMERY COUNTY, due east of Smackover. Two wells to drill and all acreage this county leased Oklahoma oil operators. Abstract furnished. $1200 cash. 4 sands here less than 3500 feet. Real opportunity. Box 648, Memphis, Tenn.

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WANT YOUNG PETROLEUM ENGINEERS to install Gas-Lift. Must reside in territory they work. Address P. O. Box 2782, Houston, Texas.

SALESMAN, familiar with drilling contractors and pumping stations, to represent firm offering a specialized engine reconditioning service. Commission. Address Box 320, The Oil and Gas Journal, Tulsa, Oklahoma.

Situations Wanted

Oil and Gasoline Distributing Companies! Corporate real estate, taxation, chain leasing man; specialist property tax assessment reduction; appraisal; successful tax saving record in present position greatly exceeding salary remuneration. Address Box K-262, The Oil and Gas Journal, Tulsa, Oklahoma.

MANUFACTURERS REPRESENTATIVE An experienced and well acquainted salesman desires additional lines to sell, in Mid-Continent Area. Commission or Salary. Box K-291, The Oil and Gas Journal, Tulsa, Oklahoma.

REFINERY ENGINEER—12 years' experience in oil refinery drafting, estimating, cost control and field work. Last 8 years with one major company holding responsible position. College graduate. Address Box K-310, The Oil and Gas Journal, Tulsa, Oklahoma.

PRODUCTION DEPARTMENT MANAGER or Superintendent, Age 45. Twenty years with two major companies in Mid-Continent fields. Practical executive. Can take charge of your operating department and lower your development and lifting expense. Would like to join company where there is a future for a man who knows the oil business and likes to work. Available now. Address Box K-323, The Oil and Gas Journal, Tulsa, Oklahoma.

PETROLEUM ENGINEER—Young man, production and drilling experience on Gulf Coast. P.P.E. degree from the University of Texas. Desires position anywhere that will involve land department work along with drilling and production. Address Box K-311, The Oil and Gas Journal, Tulsa, Oklahoma.

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Oil Industry Printing

OIL FIELD LEGAL BLANKS

Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

Incorporations

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

CHARTERS—Delaware best, quickest, cheapest, more liberal. Free forms. Colonial Charter Co., Wilmington, Del.

Royalties

ANDREW J. BARRETT

The Philtower

Tulsa, Oklahoma.

Brokers—Salesmen

Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

B. D. BUCKLEY

Paul Brown Bldg., St. Louis, Mo.

PRODUCING OIL ROYALTIES

15 years of experience.

L. H. WITWER

703 Kennedy Bldg., Tulsa, Okla.

PRODUCING royalty investments wanted. Sebago Oil Co., 719 McBirney Bldg., Tulsa, Oklahoma.

Business Opportunities

ESTABLISHED Sales and service supply company desires agency for high class gas engine and diesel engine rings—Also desires account of high class flexible couplings for connecting engines, motors, etc. to driven machines. Sell entire Mid-Continent district. Address Box K-302, The Oil and Gas Journal, Tulsa, Oklahoma.

For Sale—Maps

TEXAS and NEW MEXICO

UP-TO-DATE OIL DEVELOPMENT MAPS

Zingery Oil Map Co., Fort Worth, Tex.

R. B. ROBINSON MAPS

Jackson, Miss. 312 Century Bldg.

Ownership maps of Yazoo and forty other Mississippi counties.

Equipment Wanted

WILL buy unitized Diesel Rig, including derrick, drill pipe, casing, wire rope, etc., new or nearly so. For small-hole drilling to 7,000 feet, foreign. Send price per unit, total price, and price f.o.b., state which U. S. port. Send specifications and if will sell all or part. Address

BOX K-251

The Oil and Gas Journal

Tulsa, Oklahoma.

WANTED

Air Compressors

Ingersoll-Rand Belt Driven

10 & 4¼ x 10 XOB

11 & 5 x 10 XOB

Box K-300, The Oil and Gas Journal

Tulsa, Oklahoma.

WANTED High Pressure Portable air compressor about 150 cu. ft. capacity good for 1,000 bbl. What have you? P. O. Box 592, Artesia, New Mexico.

WANTED—Cable-tool drilling in front, with or without power. Must be reasonable. Address Box 321, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED — Complete rigs, engines, pumps, drill pipe, draw works, derricks, tubing, rods, casing, line pipe, tanks. Must be in good condition and reasonable. Furnish complete description and price. Box K-324, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED—Portable core drilling rig, complete for 1200-ft. holes. Sutter Well Works, Pass Christian, Miss.

CLASSIFIED ADVERTISING RATES

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgment is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times
3 Lines	$1.05	$1.80	$2.55	$3.30
4 Lines	1.40	2.40	3.40	4.40
5 Lines	1.75	3.00	4.25	5.50
6 Lines	2.10	3.60	5.10	6.60
7 Lines	$2.45	$4.20	$5.95	$7.70
8 Lines	2.80	4.80	6.80	8.80
9 Lines	3.15	5.40	7.65	9.90
10 Lines	3.50	6.00	8.50	11.00

CLASSIFIED DISPLAY RATES

Classified Display is set with a border and may be used in one or two column sizes

1 Inch	1 time	$5.00
1 Inch	13 times	4.50 per inch
1 Inch	26 times	4.00 per inch
1 Inch	52 times	3.50 per inch

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL

Tulsa, Oklahoma